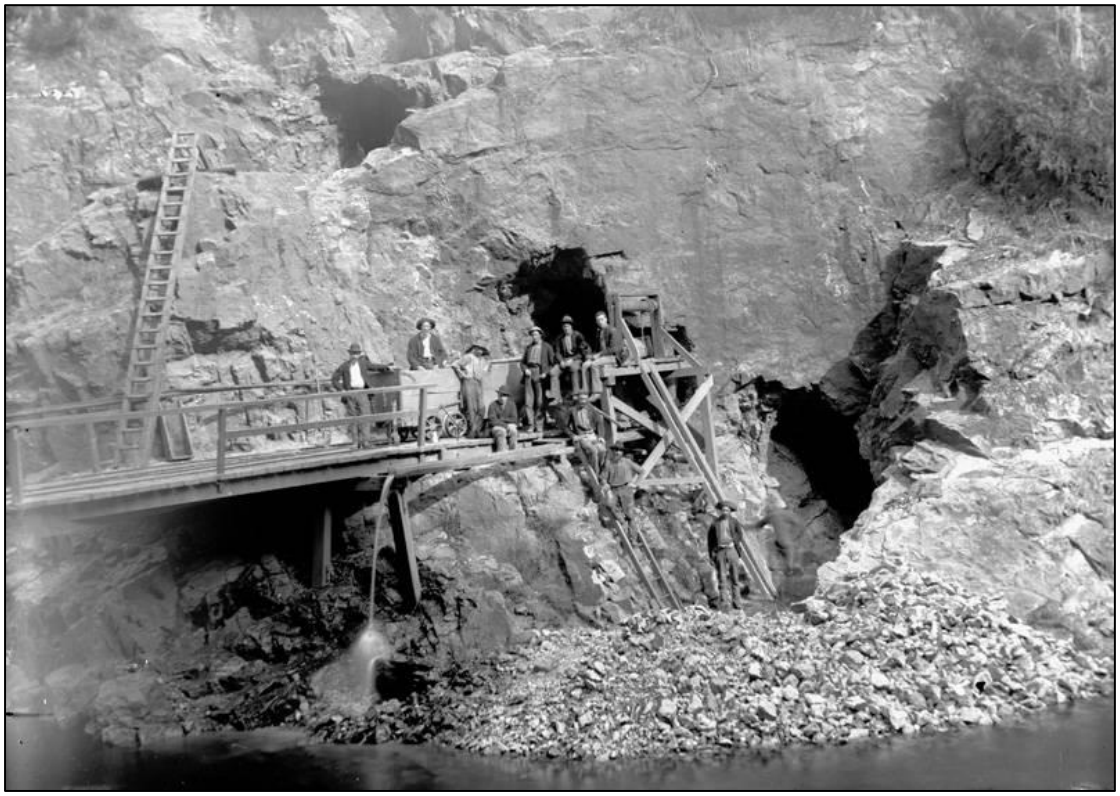
Crown River Level Adit



Margaret Matilda White (B3573) photograph, c.1893.

Eric Lens 2023

1890	April. Crown (Karangahake).—The new find on the river level promises extremely well, as gold is showing freely. Mr McGruer has the majority of the staff there. The level is seven hundred feet below Captain Coward's.[1] May. Crown: A start has been made connect the new find with the reduction works. This will be done by means of a ground tramway of about 20 chains, utilising the old Monastry line (which property the Crown Company have recently purchased). The ore will then be sent on to the stone-breaker floor by means of a hoist similar to that now being used for hoisting the ground ore to the Cassel Company's works.[2] 25 June. In the Crown mine (Karangahake) Mr McGruer has finished a connection between the new Waitawheta reef and the mill.[3]
1892	August. The tramway leading from the mine to the new mill site (the Waitawheta Road) is completed. [4]
1894	March. Compressor at old Crown battery site working. [5] Therefore an air pipe will enter the adit.
1898	Early. The new air compressing plant in the "Crown Stope" started. [6]
1899	Early. The manager has altered the names of the levels, in order to save confusion. The No. 6 level in future will be known as the **Waitawheta tunnel**.[7]
1901	March. A splendid pump has been installed. The machinery for pumping and winding is such that almost every contingency is guarded against. [8] This is all run by compressed air. The whole of the company's underground machinery is now worked by a **powerful air-compressor**, and it is doubtful if a more complete and up-to-date plant is to be found on the Australasian goldfields. [9]
1903	July. Consequent upon the continued lowlevel exploitations and the opening up of new blocks, it was found that the demand upon the motive power was too great to keep all the plant—such as pneumatic engines, Cameron pumps, and rock-drills— working continuously, and so the management decided to augment the power by an auxiliary steam plant. A large Babcock

[1] https://paperspast.natlib.govt.nz/newspapers/AS18900401.2.33
Auckland Star, Volume XXI, Issue 76, 1 April 1890, Page 5
[2] https://paperspast.natlib.govt.nz/newspapers/TAN18900503.2.11
Te Aroha News, Volume VII, Issue 468, 3 May 1890, Page 2
[3] https://paperspast.natlib.govt.nz/newspapers/THS18900625.2.10.1
Thames Star, Volume XXII, Issue 6610, 25 June 1890, Page 2
[4] https://paperspast.natlib.govt.nz/newspapers/NZH18920812.2.7
New Zealand Herald, Volume XXIX, Issue 8955, 12 August 1892, Page 3
[5] https://paperspast.natlib.govt.nz/newspapers/NZH18940323.2.70.13
New Zealand Herald, Volume XXXI, Issue 9466, 23 March 1894, Page 2 (Supplement)
[6] https://paperspast.natlib.govt.nz/newspapers/NZH18980218.2.67.4
New Zealand Herald, Volume XXXV, Issue 10680, 18 February 1898, Page 1 (Supplement)
[7] https://paperspast.natlib.govt.nz/newspapers/NZH18990217.2.82.3
New Zealand Herald, Volume XXXVI, Issue 10989, 17 February 1899, Page 1 (Supplement)
[8] https://paperspast.natlib.govt.nz/newspapers/NZH19010322.2.79.3
New Zealand Herald, Volume XXXVIII, Issue 11607, 22 March 1901, Page 1 (Supplement)
[9] https://paperspast.natlib.govt.nz/newspapers/NZH19010412.2.77
New Zealand Herald, Volume XXXVIII, Issue 11625, 12 April 1901, Page 1 (Supplement)

	boiler was therefore installed at the mine. Provision has also been made in the boilerhouse for another boiler, which will probably be erected shortly.[10] This is the concrete pillbox perched on the cliff beside the Waitawheta entrance to the mine.

Monastery aerial cableway

AJHR 1887[11]

> Warden's Report, Mr Warden Stratford. Page 4, May 1887:
>
> *Monastery Mine.*—This mine is situated nearly opposite Railey's Battery, and across the Waitawheta River. Eight chains of a tramway connects with the battery…
>
> Page 16. Ohinemuri Goldfield. Karangahake District. Mining Inspector Mr G. Wilson:
>
> Monastery Gold-mining License. —…The present owners saw an opportunity of profitably working the mine when they learned of the position that Mr. Railey had fixed on for the erection of his reduction-plant, which is situated about 7 chains [141m] higher up on the opposite side of the gorge, and at once started vigorously to work to make the necessary connections between their workings and the battery by the construction of tramways, of which there are three sections, the first being a self-acting wire-tram-way. This leads into a hopper at the head of the ground-tramway, which is 200 ft. below the working-level. The second section is a ground-tramway, which winds round the face of a rocky cliff for a distance of 8 chains to a platform constructed opposite the battery. From this point another wire tramway is connected with the battery-machinery to haul the trucks across the river. The whole of these connections are now completed, and working satisfactorily…[12]

This was for the Monastery Gold-mining Company, high above what we now call the Crown Stope. The same reef, even? This infrastructure is above and slightly upstream from the "Crown Stope" (true right bank of the Waitawheta River), and includes a levelled platform (the terminus of the self acting wire, and hopper site), remains of the ground tramway cut into the cliff, and the anchor point of the last remaining cable crossing the river to Railey's battery. The excavated platform is below the steeper, rougher section of the walkway upstream of the Crown Stope.

The description makes clear that there is a self-acting wire tramway, from the workings (adit), and a second wire tramway to haul trucks across the river to the battery. It doesn't mention a swing bridge, as we see in photographs, so it may or may not have been there at this time. It seems that this crossing was a combination of wire and bridge.

Later, the Crown Company connect to the above infrastructure by cutting a steep tramway into the cliff, with bridge, hauling their ore trucks by cable to the levelled platform. The current walkway follows this cutting in the cliff.

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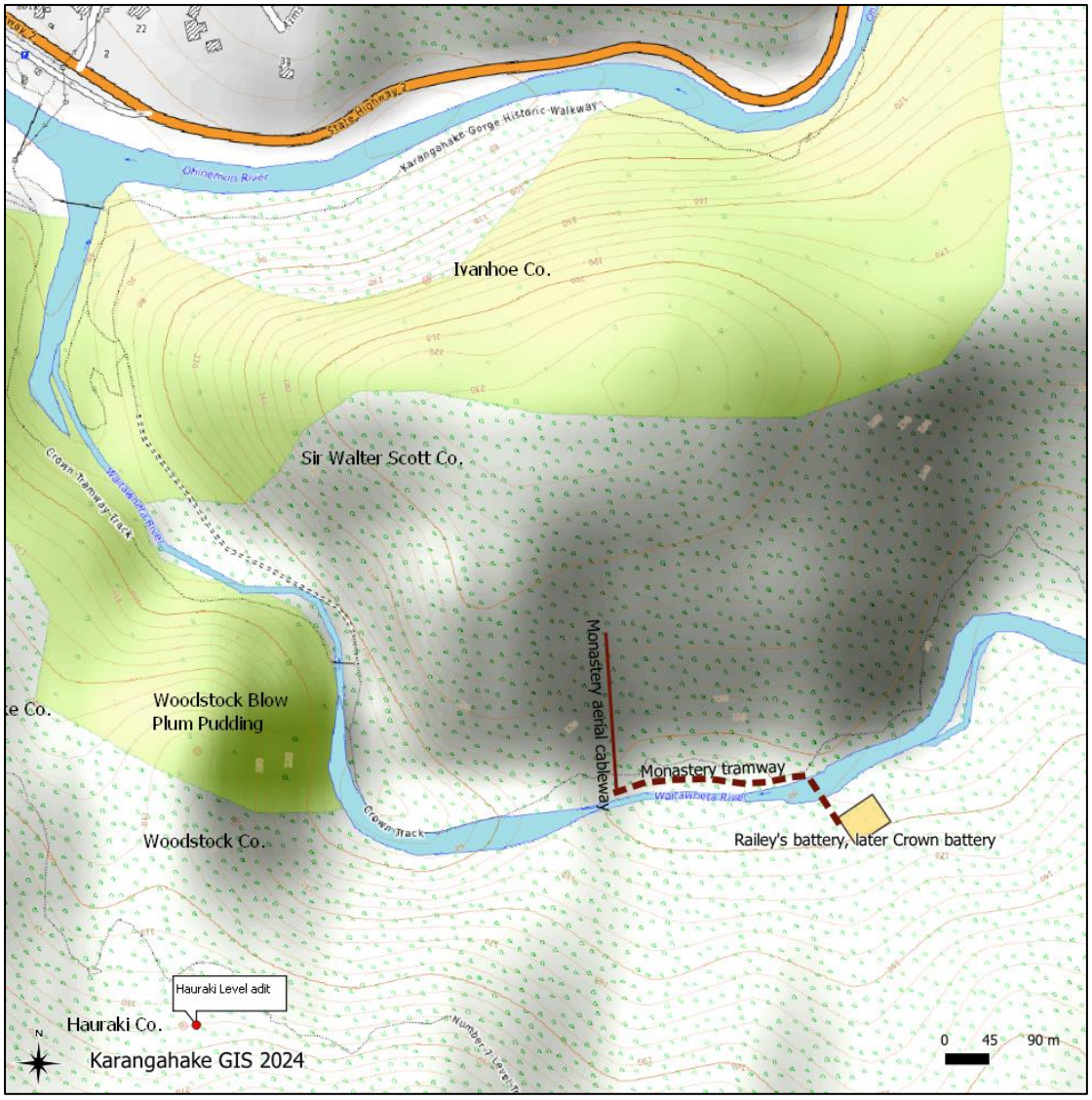
[10] https://paperspast.natlib.govt.nz/newspapers/NZH19030723.2.68
New Zealand Herald, Volume XL, Issue 12330, 23 July 1903, Page 6

[11] https://paperspast.natlib.govt.nz/parliamentary/AJHR1887-I.2.1.4.6
GOLDFIELDS., Appendix to the Journals of the House of Representatives, 1887 Session I, C-06

[12] https://paperspast.natlib.govt.nz/parliamentary/AJHR1887-I.2.1.4.6
GOLDFIELDS., Appendix to the Journals of the House of Representatives, 1887 Session I, C-06



Monastery mine infrastructure. The map is representational only.

A steep aerial cableway delivered ore to a platform cut into the side of the river; it is still there. Then a tramway that is glued to the cliff beside the Waitawheta River, and a swing bridge to the battery site.

The Crown Company modify this route by cutting a tramway into the cliff from the river level entrance to the platform.

1890

20 February

At Karangahake, Mr G. A. McGruer takes full charge of the Crown mine, vice Capt. Coward returned Home.[13]

1 April

Crown (Karangahake).—The new find on the river level promises extremely well, as gold is showing freely. Mr McGruer has the majority of the staff there. The level is seven hundred feet below Captain Coward's.[14]

[13] https://paperspast.natlib.govt.nz/newspapers/WT18900220.2.15
Waikato Times, Volume XXXIV, Issue 2747, 20 February 1890, Page 2
[14] https://paperspast.natlib.govt.nz/newspapers/AS18900401.2.33
Auckland Star, Volume XXI, Issue 76, 1 April 1890, Page 5

Crown: new find on the river level

5 April

> At Karangahake… The new river level in the Welcome portion of the Crown mine, lately opened up by Mr G. N. McGruer, has also an excellent show. The reef is a very large one, and carries visible gold. Hitherto the bullion from the Crown has been of very poor quality, silver predominating, but the returns from this reef should show reverse results.[15]
>
> At Karangahake, the Crown mine has much improved. The new river level, opened by Mr G. W. McGiven [McGruer], shows well, gold being seen freely. This level is 700 ft. lower than the lowest opened by Capt. Coward…[16]

23 April

> At the mine Mr McGruer has made a start to open a level on a large reef close to the Waitawheta river, at a depth of 600 feet below Capt. Coward's low level…
>
> I understand that a tramway to connect this part of the mine with the reduction works is to be proceeded with at once.[17]

The River Level, Welcome Reef, McGruer's Reef.
Although called the River Level, this is No. 4 level, above what will later be No. 6 level, which then gets called the River Level. A bit confusing. See 24 November below. No. 6 Level may not exist until late 1891? [18] [19]

3 May

> Crown: A start has been made to connect the new find with the reduction works. This will be done by means of a ground tramway of about 20 chains, utilising the old Monastry line (which property the Crown Company have recently purchased). The ore will then be sent on to the stone-breaker floor by means of a hoist similar to that now being used for hoisting the ground ore to the Cassel Company's works.[20]

Connecting the "new find", the Welcome reef, to the battery will be by using the old Monastery line. There is no mention of a bridge across the Waitawheta River at the River Level. Maybe there is one. How did the miners access the workings on the two sides?
If the new find is at the No.4 level, which until May 1892 was the main level of the mine, then some connection across the river is required. The above report says ground tramway, no mention of a wire.
Maybe there was a wire, to the platform at the downstream end of the Monastery line. There is mention of this possible wire in 13 August 1890.

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[15] https://paperspast.natlib.govt.nz/newspapers/THA18900405.2.18
Thames Advertiser, Volume XXIII, Issue 6577, 5 April 1890, Page 2
[16] https://paperspast.natlib.govt.nz/newspapers/WT18900405.2.20
Waikato Times, Volume XXXIV, Issue 2766, 5 April 1890, Page 2
[17] https://paperspast.natlib.govt.nz/newspapers/TAN18900423.2.12
Te Aroha News, Volume VII, Issue 465, 23 April 1890, Page 2
[18] https://paperspast.natlib.govt.nz/newspapers/NZH18911207.2.55
New Zealand Herald, Volume XXVIII, Issue 8743, 7 December 1891, Page 6
[19] https://paperspast.natlib.govt.nz/parliamentary/AJHR1892-I.2.1.4.3
THE GOLDFIELDS OF NEW ZEALAND: REPORT ON ROADS, WATER-RACES, AND OTHER WORKS IN CONNECTION WITH MINING., Appendix to the Journals of the House of Representatives, 1892 Session I, C-03
[20] https://paperspast.natlib.govt.nz/newspapers/TAN18900503.2.11
Te Aroha News, Volume VII, Issue 468, 3 May 1890, Page 2

And then again in the Warden's report in the **1892** AJHR suggesting there was a cableway at the river level adit. "The quartz from the low level is conveyed to the battery with great difficulty. It has to be hauled across the Waitawheta Stream on a wire tramway, run along a ground tramway, and then hauled by a wire tram again across the stream up to the mill".[21]
The later, November 1890 article, says when sending ore from the Monastery section (or northern), the connection to the old Monastery tram required a section "hewn out of the solid rock" (See 24 November below). Is this the "connection" spoken of above?

21 June

> Crown: The work of connecting the new reef with the Company's Battery is almost completed, and a good sized paddock of payable rock is ready to be sent along the line.[22]

25 June

> In the Crown mine (Karangahake) Mr McGruer has finished a connection between the new Waitawheta reef and the mill.[23]

19 July

> Crown Mines Company: As soon as the connection between the battery and Welcome reef is complete, a large parcel will at once be forwarded for treatment.[24]

The exact nature and sequence of these connections remains elusive.

13 August

> THE CROWN MINE.
> …but recently at a much lower level there has been opened up a valuable lode known as the Welcome reef, which has proved on trials to be worth about £15 per ton. It is not necessary to describe the great extent of aerial tramways that have been constructed or the numerous crosscuts that have been put in on both sides of the river; but it may be as well to state that in the bed of the river itself, the reef exposed is 20 feet in width. Where the lode is now worked, fully 1000 feet [305m] beneath the upper levels, it is four to five feet thick. [25]

18 August

> The Welcome or McGruer's reef has been cut on the eastern side of the river, and is looking well.[26]

Meaning northern side?

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[21] https://paperspast.natlib.govt.nz/parliamentary/AJHR1892-I.2.1.4.4
GOLDFIELDS AND WATER-RACES (REPORTS ON, BY WARDENS, INSPECTORS OF MINES, AND WATER-RACE MANAGERS)., Appendix to the Journals of the House of Representatives, 1892 Session I, C-03a
[22] https://paperspast.natlib.govt.nz/newspapers/TAN18900621.2.11
Te Aroha News, Volume VII, Issue 482, 21 June 1890, Page 2
[23] https://paperspast.natlib.govt.nz/newspapers/THS18900625.2.10.1
Thames Star, Volume XXII, Issue 6610, 25 June 1890, Page 2
[24] https://paperspast.natlib.govt.nz/newspapers/TAN18900719.2.14
Te Aroha News, Volume VIII, Issue 490, 19 July 1890, Page 2
[25] https://paperspast.natlib.govt.nz/newspapers/NZH18900813.2.56
New Zealand Herald, Volume XXVII, Issue 8383, 13 August 1890, Page 6
[26] https://paperspast.natlib.govt.nz/newspapers/NZH18900818.2.54
New Zealand Herald, Volume XXVII, Issue 8337, 18 August 1890, Page 6

2 October

> Welcome or "McGruer's" reef, on the northern or Monastery section of the mine. Here recently a crosscut has been put in at a low level—about 200 feet lower than Mr. Hogg's level—and the Welcome reef has been cut…
> Cassel G.E. Co.'s Plant.—Tenders for the erection of the new Customs mill closed on Saturday. These tenders are for the construction of a quite separate plant to that of the Crown, the intention being to erect a large plant on the land known as Shepherd's farm, for the convenience of those desiring to sell their ore instead of treating it themselves.[27]

Plans for new Crown plant

Plans already underway for the new plant downstream from Battery Flat.

The Welcome or "McGruer's" reef, on the northern or Monastery section of the mine, is also being mined.

9 October

> CROWN. The ore now being treated is from the upper levels of the mine, and is estimated to be worth from £10 to £12 per ton. A start will be made this week to treat a large parcel from the Welcome reef, of which there is an unlimited quantity of good payable ore to hand. The reef still continues to look well, and some of the stone from the Monastery section is very rich.[28]

25 October

> …the Crown Goldmining Company are getting rock in the northern section of the mine which is the best general stone I have ever seen in Ohinemuri.[29]

24 November

> …No. 4 level is somewhere about 700ft below Captain Coward's low level (No. 3), or close upon 1500 ft on the underlay of the reef.
> …No. 5 level is 80ft below No. 4…

No mention of a No. 6 Level yet.

> On the north side of the river, in the Monastery section, the same reef has been cut at the level of No. 5, from which some rich stone was broken out in my presence. From the outcrop of the reef immediately above the tunnel some stone was taken which assayed £1100 per ton. "Why don't they beat out this rich stone?" I have heard some people ask; but that is no easy matter, owing to the steepness of the spur through which the leader runs. If it cannot be got at from the top, however, it can from below, only it will be some time before it can be reached, as the level at which the reef has been cut is over 100 ft below where the rich stone is showing on the surface.
> …the mode of forwarding the quartz to the battery, which, is situated twelve chains [241 m] higher up the river. The ore, on leaving the mine, is conveyed along a short ground tramway (which had to be hewn out of the solid rock), and dumped on to a platform, where it is filled into the boxes of the aerial tram, and passed over the river, dumped into the trucks, and run along a

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[27] https://paperspast.natlib.govt.nz/newspapers/NZH18901002.2.40
New Zealand Herald, Volume XXVII, Issue 8376, 2 October 1890, Page 6
[28] https://paperspast.natlib.govt.nz/newspapers/THS18901009.2.30
Thames Star, Volume XXII, Issue 6700, 9 October 1890, Page 4
[29] https://paperspast.natlib.govt.nz/newspapers/WT18901025.2.32
Waikato Times, Volume XXXV, Issue 2853, 25 October 1890, Page 2

> ground tramway 10 chains [201m] long, from whence it is hoisted into the hoppers on the level of the stonebreaker…
> The quartz has to be brought up the river and hoisted a height of nearly 100 ft; then on going through the mills it has again to be hoisted a height of 80ft before it can be by the Cassell process.[30]

There is only one stream crossing in this description. This is ore from the Monastery section (or northern). So only one river crossing, but he has confused where the 10 chain section is. That is the only bit he has wrong. The aerial tram is his description of how ore gets across the river at the "swing bridge" across to the battery. It was described as a "wire tramway is connected with the battery-machinery to haul the trucks across the river" in Inspector McLaren's report, AJHR 15th April, 1887.[31]
The "hewn out of the solid rock" portion is the part of the Crown Track that takes the modern walker past the River Level Adit, when proceeding upstream. If this is correct, then the ore coming from the Monastery section at this time is coming from river level.

AJHR 1891

> Crown Company. —This company have opened out a low level on what is known as the Welcome Reef. This level commences at the side of the Waitewheta Creek, about 500 ft. below the level of the Crown workings. When I visited the mine in December last this level was constructed for about 100 ft. on the reef or lode…. This lode has also been cut on the north, or opposite, side of the creek, and an adit constructed on the lode for about 50ft., which shows the same character of ore, and is about the same thickness as that on the south side.[32]

1891

1 July

> Mr George McGruer, manager of the Crown mine, Karangahake, is working on splendid ore in the Monastery or No. 5 section. The picked stuff is worth about ½oz to the pound.[33]

7 December

> Crown Mine. A fresh start has been made in the mine, where a large staff of hands is now employed in starting a new low level, and forming a section of the tram line in order to avoid the costly and laborious system of transmitting ore for treatment heretofore. [34]

This must be the tramline, the new Waitawheta Road, to the new Crown battery. What/which is the new low level? No. 6, also called River Level?

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[30] https://paperspast.natlib.govt.nz/newspapers/THS18901124.2.21
Thames Star, Volume XXII, Issue 6739, 24 November 1890, Page 4
[31] https://paperspast.natlib.govt.nz/parliamentary/AJHR1887-I.2.1.4.6
GOLDFIELDS., Appendix to the Journals of the House of Representatives, 1887 Session I, C-06
[32] https://paperspast.natlib.govt.nz/parliamentary/AJHR1891-II.2.1.4.6
GOLDFIELDS' ROADS, WATER-RACES, AND OTHER WORKS IN CONNECTION WITH MINING., Appendix to the Journals of the House of Representatives, 1891 Session II, C-04
[33] https://paperspast.natlib.govt.nz/newspapers/THS18910701.2.9.1
Thames Star, Volume XXIII, Issue 6922, 1 July 1891, Page 2
[34] https://paperspast.natlib.govt.nz/newspapers/NZH18911207.2.55
New Zealand Herald, Volume XXVIII, Issue 8743, 7 December 1891, Page 6

AJHR 1892

July

Some two years ago a new lode was discovered in the Crown Company's property, which was far richer than anything found on their old workings. They are now engaged in constructing three levels, the upper one is termed No. 4, and it is about 120 ft. above the No. 6 level. Some two years ago a new lode was discovered at each side of the gorge of the Waitawheta Creek, about 10 chains lower down than their crushing-plant. Last year a considerable amount of work was done on this lode; three levels are being constructed, one about 20ft. above the level of the creek on both sides of the gorge, and one on the southern side of the creek, about 120 ft. above the lower level, having an intermediate level between. The lode in the lower level is from 6ft. to 10ft. wide[35]

Three levels. Two are the river level adit or No.6 level, both sides of the creek (20ft above river level). This is the level we see connected by the bridge in all the photos. We walk on this level.
The third level is the No.4 level, on the southern side, 120ft above the river level adit. There is an intermediate level, presumably No. 5.

19 May

Crown Mines, The quartz was obtained from the low levels opened on the reef on either side of the Waitawheta Stream. The quartz from the low level is conveyed to the battery with great difficulty. It has to be hauled across the Waitawheta Stream on a wire tramway, run along a ground tramway, and then hauled by a wire tram again across the stream up to the mill. [36]

The first real mention of a second cableway.
Is No. 4 the "low level" mentioned here? Could there have been a cableway?

1892

4 May

On the south side of the river Waitawheta, where operations have hitherto been chiefly carried on, a new main level has been opened from the face of the cliff at the level of the new tramway. The reef was opened from the face where it was exposed…

A new main level? The new tramway is the Waitawheta Road? It nears completion mid 1892. And therefore this level must be the No. 6?

We may add that stoping is being carried on at this level; also from one 35 feet higher [No.5], and from what is known as No. 4 level, which until recently has been the main level of the mine, and in which the reef has been driven on for a length of 300 feet. A new face was just being opened at the creek level,

[35] https://paperspast.natlib.govt.nz/parliamentary/AJHR1892-I.2.1.4.3
THE GOLDFIELDS OF NEW ZEALAND: REPORT ON ROADS, WATER-RACES, AND OTHER WORKS IN CONNECTION WITH MINING., Appendix to the Journals of the House of Representatives, 1892 Session I, C-03
[36] https://paperspast.natlib.govt.nz/parliamentary/AJHR1892-I.2.1.4.4
GOLDFIELDS AND WATER-RACES (REPORTS ON, BY WARDENS, INSPECTORS OF MINES, AND WATER-RACE MANAGERS)., Appendix to the Journals of the House of Representatives, 1892 Session I, C-03a

> beneath the tramway, at the time of our visit. This, we may add, is only about 18 feet below the main level.[37]

A new main level at the level of the new tramway; ie the No. 6 Level

This is mentioned in the AJHR report, July 1892 (the level on both sides of the creek).
There is a level 35ft higher up. No.5 Level?
A new level has been opened, at creek level, below the tramway/No. 6 Level.
Are these the three adits we see in the MM White photo?
The No. 4 Level has been the main level of the mine.
If the No. 4 level was worked, and ore taken from, then there possibly was a cable to bring it across to the Monastery (tramway) side.
We know a bridge was put in, between both sides of the river level adit, we see it in every photograph. But it hasn't been mentioned. Ever!

AJHR 1893.

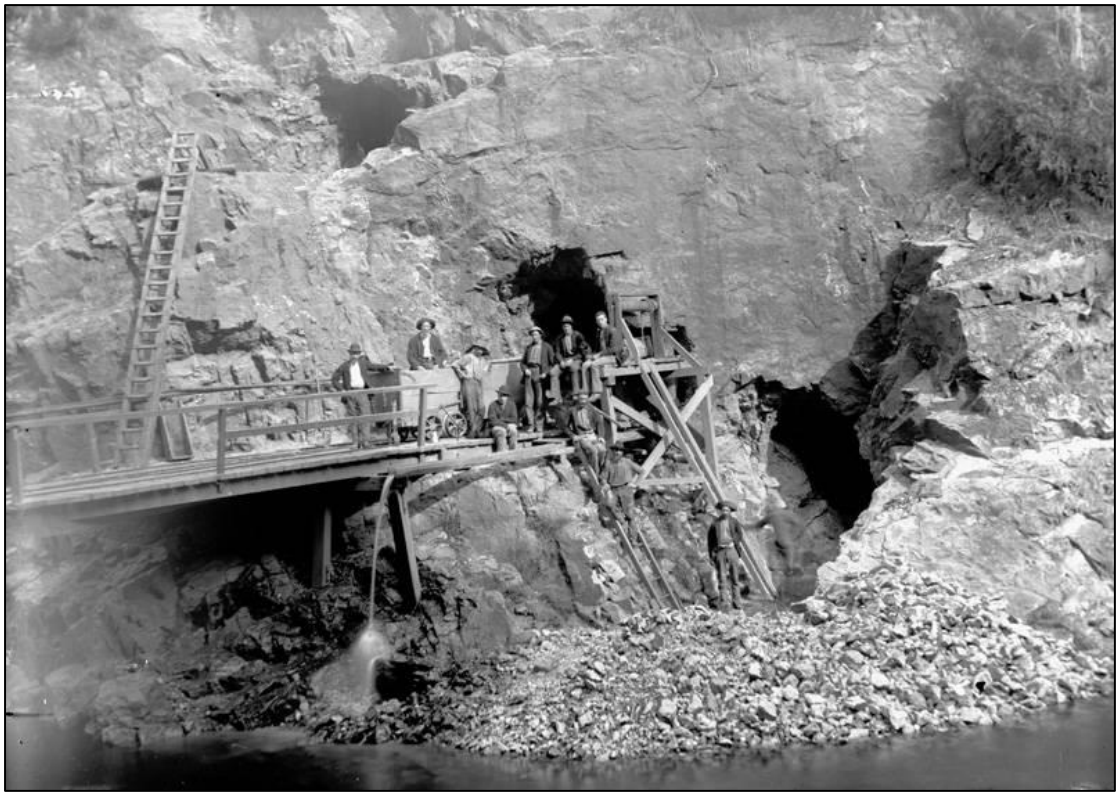
> No. 4 adit is 124 ft. above the creek level.
> No. 5 adit is 72ft. below No. 4 [ie. 52 ft above the creek level.]
> The No. 6 adit level, on the south side of the creek, is on a level with the gorge tramway, and therefore will be used as the main adit to work the stopes above this level. [38]

Presumably "creek level" is water level, then No. 6 level is roughly 18 ft higher. The No. 5 level is 34 ft above No. 6 level, as reported above (35 ft).
There has been added another level, 18 ft below No. 6, at river level. What was this for? Surely river water must frequently rush in.
Combining the various reports, we may summarise:-

- No.4 Level is 700ft below Coward's No. 3 Level, 124 ft. above the creek level. It was initially called the river level. A report from May 1892 states the No. 4 level has been the main level of the mine.
- No. 5 level is c.75 below No. 4 level, ie. c.50 ft above the creek level.
- No. 6 level, River Level, is c. 18ft above river level.
- Another level, or maybe just an adit, 18 ft below No. 6, at actual river level.

Phew.

[37] https://paperspast.natlib.govt.nz/newspapers/NZH18920504.2.47
New Zealand Herald, Volume XXIX, Issue 8869, 4 May 1892, Page 6
[38] https://paperspast.natlib.govt.nz/parliamentary/AJHR1893-I.2.1.4.5
THE GOLDFIELDS OF NEW ZEALAND: REPORT ON ROADS, WATER-RACES, MINING MACHINERY, AND OTHER WORKS IN CONNECTION WITH MINING., Appendix to the Journals of the House of Representatives, 1893 Session I, C-03



This photograph appears to be the earliest we have of the Crown River Level. It must post-date the work on this new reef, ie after 1890. 11 men can be seen.

The photographer is Margaret Matilda White (B3573), and was probably taken after access was provided by the Waitawheta Road (tramway) up the Waitawheta completed in mid 1892. Access before this time was difficult. It appears that a pipe enters the mine at handrail height on the bridge. This could be compressed air from the compressor building which replaced the Crown battery (early 1894), or maybe even from the battery during its operation. Compressed air was required to run the rock drills. If after 1897-8, a conspicuous compressed air pipe would be present top left of image.

The windlass device at centre appears to haul a bucket up the steep wooden rails from the low level (allowing ore to be then tipped into an ore truck?). It is not seen complete in subsequent photographs. There appear to be three entrances here; No. 5, No. 6, (River Level or Waitawheta Tunnel), and the level 18ft below? The ladder gives access to the No. 5? Level. This ladder lingers in many subsequent photographs.

It seems certain White made a visit to Karangahake no later than August 1894. She photographed the Cox/Woodstock battery before the new ten stamp mill was built. It is quite possible she travelled up to this mine, and to the compressor house.

We can stand where Margaret stood.

Staples Collection.[39]

The following images (and even this one) are difficult to date sequence. The structures at the portal, including the windlass, and the state of dying trees in the gorge behind, have been used to arrive at this estimate of a sequence.

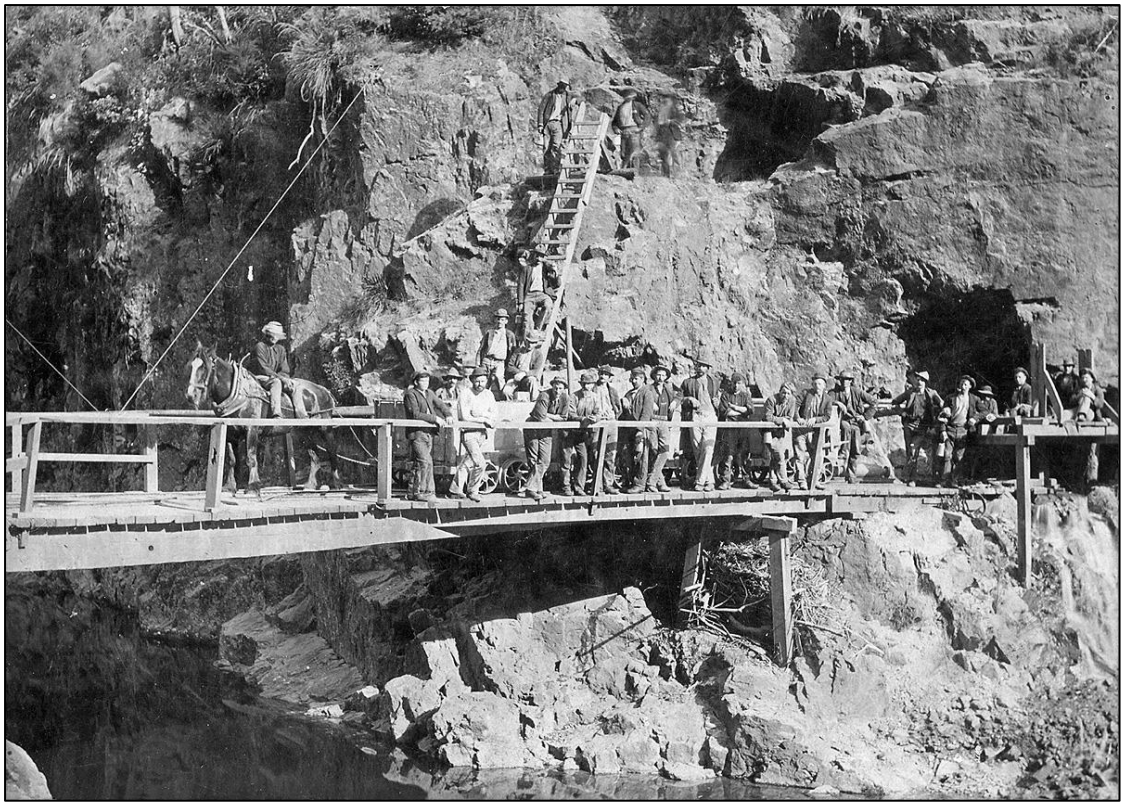
[39] Also Auckland Museum 27527-773708

MM White photograph, B3567, post August 1892. Probably even later; before the large compressed air pipe of late 1897 or early 1898.

Two miners at the adit portal, and two companions of the photographer on the mullock tip in the foreground, a man and a child. Could the man be Albert Reed?

Considerable mullock has been used to create the bench for the tramway, and been tipped into the river. The tramway is a bit wonky, and has seen considerable use. A subsequent image of the same scene appears to show this mullock completely removed by flood water?

Staples Collection.



26, maybe 27 men are grouped here for this photograph. And one horse.

The photographer requires the cooperation of the mine management and all the miners to achieve a group photograph like this. It disrupts mining and production, and requires prior planning.

Only the windlass supports remain.

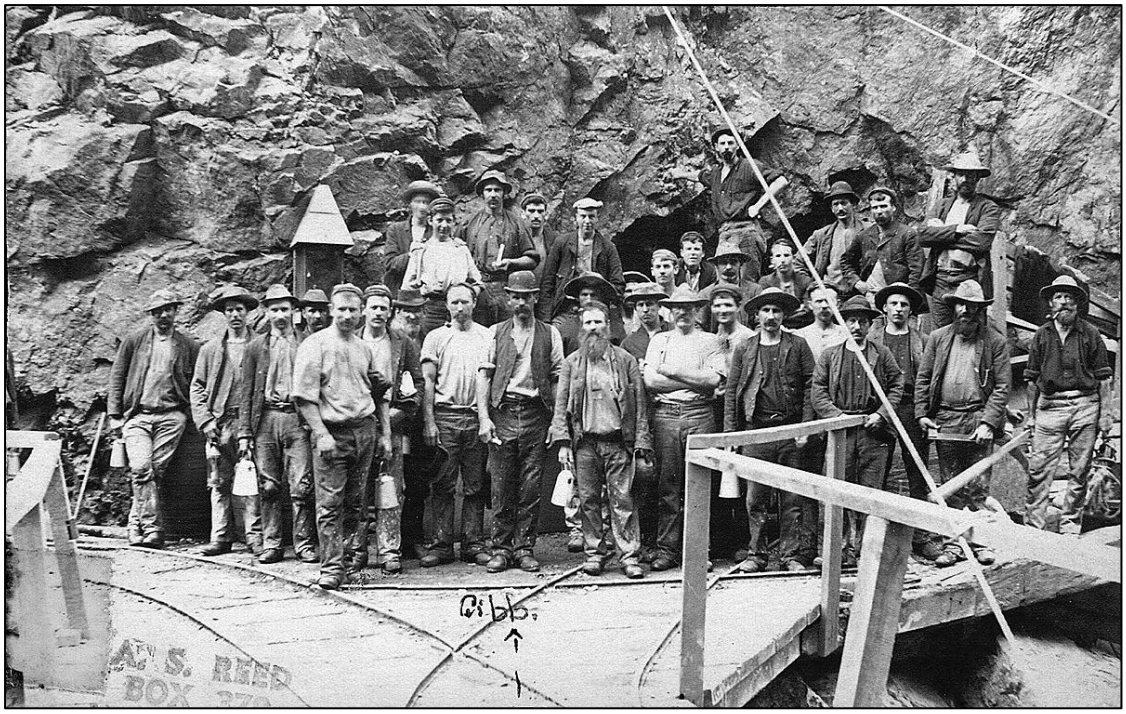
Staples Collection. Photographer unknown, but could be MM White?

Three men are manipulating two ore carts.

At the left hand end of the bridge the tramway that was cut into the cliff to allow ore to be taken upstream to the first Crown battery can be seen. At the extreme left of the image can be seen the opening of the adit which is the northern extension of the No. 6 level. We now think of it as the Crown Stope.

The exposed ends of the rail sleepers, and the absence of all the mullock on the river bank (visible in a previous photograph) suggests a recent flood.

Courtesy N. Ritchie.

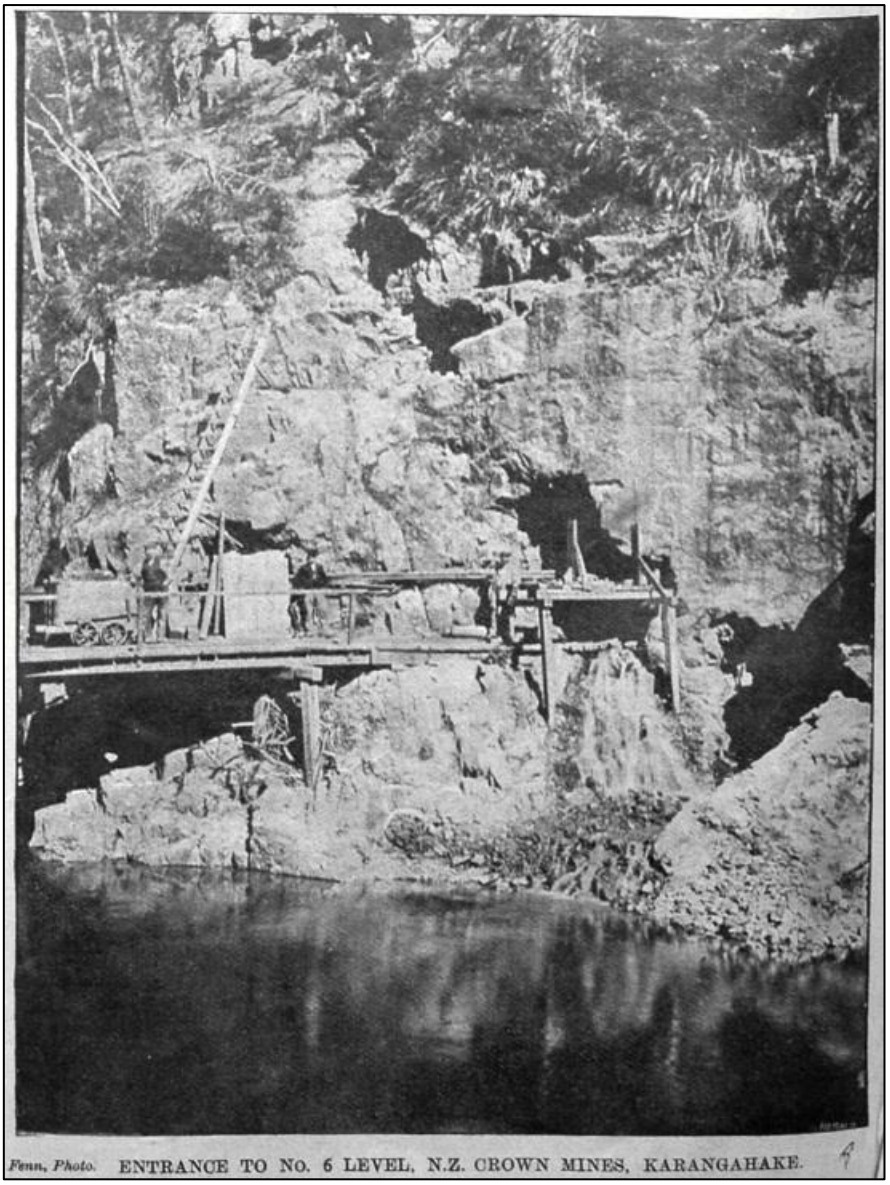


This photograph taken from on the bridge may be a MM White photograph. AS Reed was her son.

The 34 men are assembled in front of the entrance on the true right bank of the Waitawheta River, ie in front of what we now think of as the Crown Stope.

The purpose of the small pyramidal structure on the cliff is unknown. Something approaching a bird box appears in a similar position in a later image.

Staples Collection.



Fenn, Photo. ENTRANCE TO NO. 6 LEVEL, N.Z. CROWN MINES, KARANGAHAKE.

Published by the Auckland Weekly News 3 February 1899.
Auckland Libraries Heritage Collections AWNS-1899 02 03-02-04

ENTRANCE TO THE CROWN MINE, KARANGAHAKE.

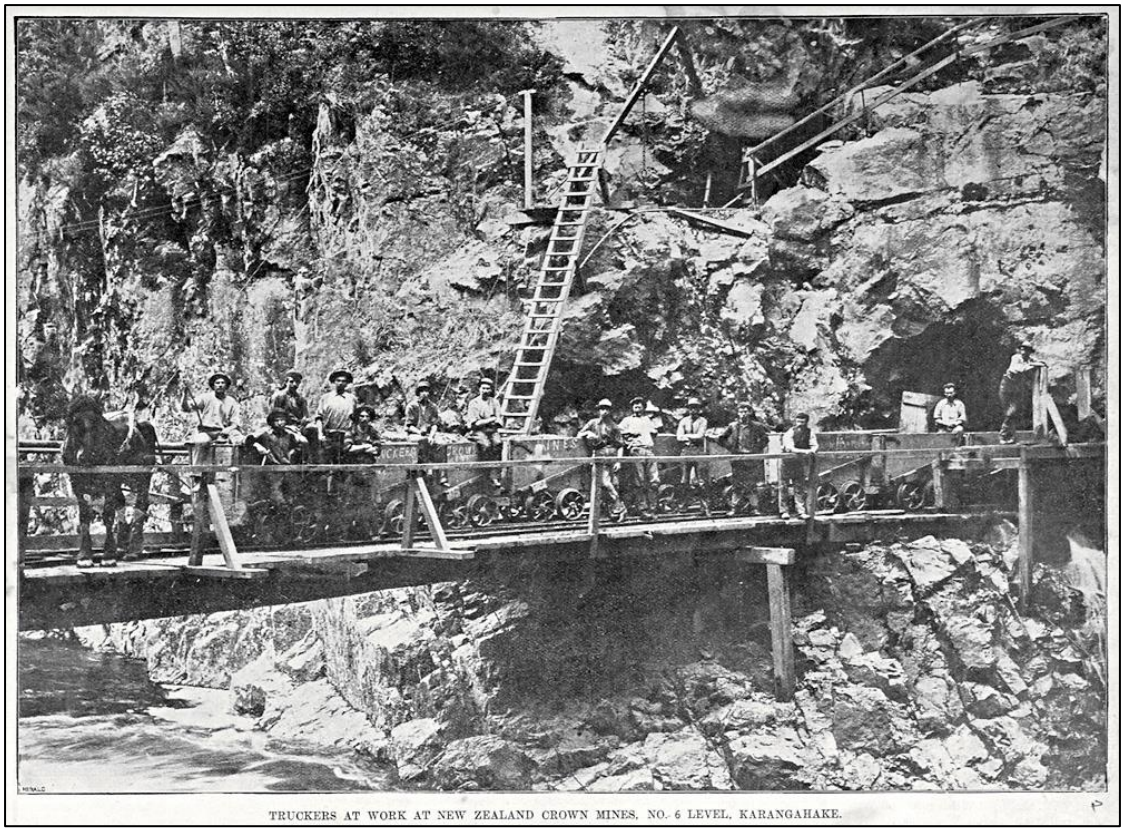
From the Cyclopedia 1902. It is signed Winkelmann, a well known Auckland photographer who took many photographs at Karangahake.

Although published in the Cyclopedia in 1902, it must predate 1897/8 as there is no evidence of the large compressed air pipe from the compressor across the river. The smaller pipe from the old Crown battery site compressor can be seen entering the adit. Some lengths of pipe stand ready to be taken in to the mine.

The photographic model perched on the ore cart, possibly reading a newspaper, is probably the photographer's companion/assistant.

A copy of this image appears in The New Zealand Graphic and Ladies Journal, published 2 May, 1896.[40]

[40] http://www.aucklandcity.govt.nz/dbtw-wpd/exec/dbtwpub.dll?BU=http%3A%2F%2Fwww.aucklandcity.govt.nz%2Fdbtw-wpd%2FHeritageImages%2Findex.htm&AC=QBE_QUERY&TN=heritageimages&QF0=ID&NP=2&MR=5&RF=HIORecordSearch&QI0=%3D%22NZG-18960502-489-1%22



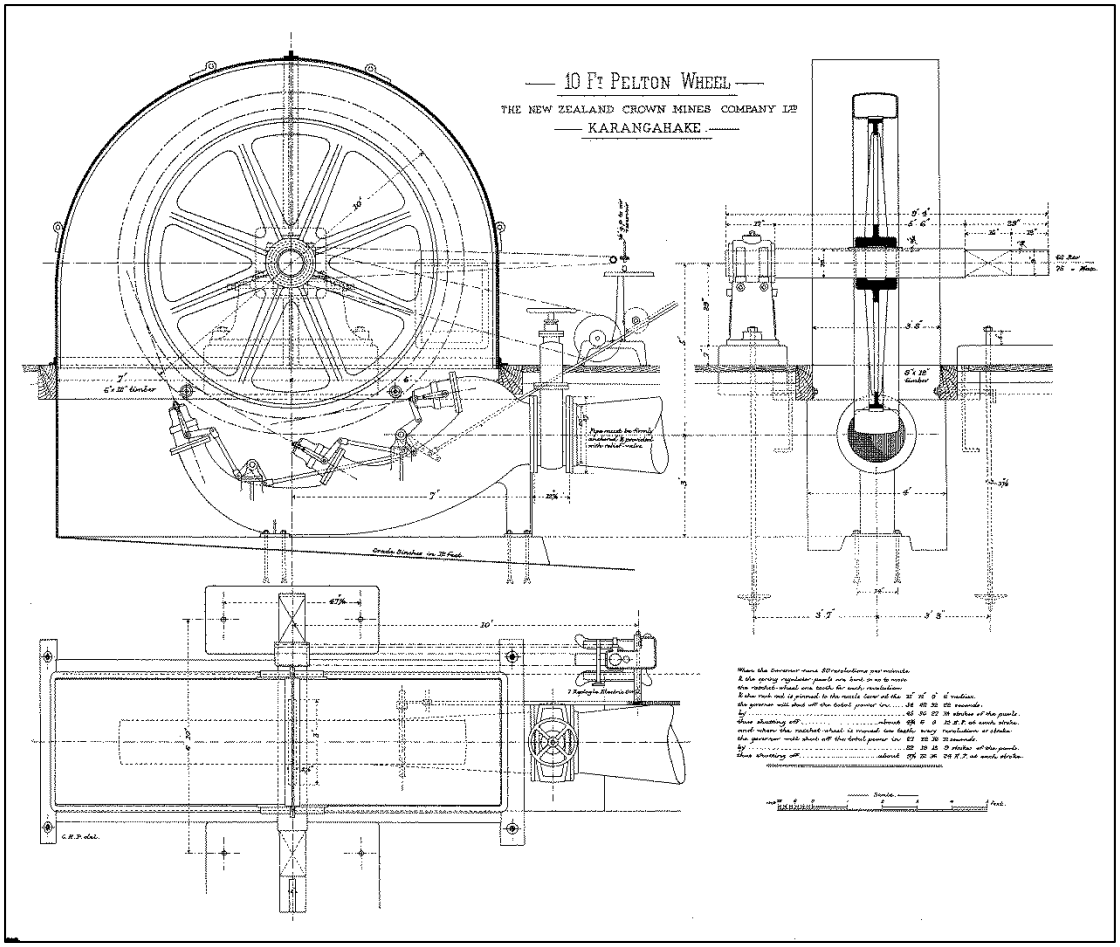
TRUCKERS AT WORK AT NEW ZEALAND CROWN MINES, NO. 6 LEVEL, KARANGAHAKE.

Published by the Auckland Weekly News 2 June 1899. But still prior to 1897/8.

14 truckers, and a horse. At least nine trucks (ore carts). That seems a lot for one horse. It appears the men have written on some of the ore carts: Truckers Crown Mines.

Telegraph (maybe electricity) wires enter the upper level. The hand railing extending up to the right of this upper level (No.5?) suggests foot access to a higher level.

Auckland Libraries Heritage Collections AWNS-1899 06 02-05-01.

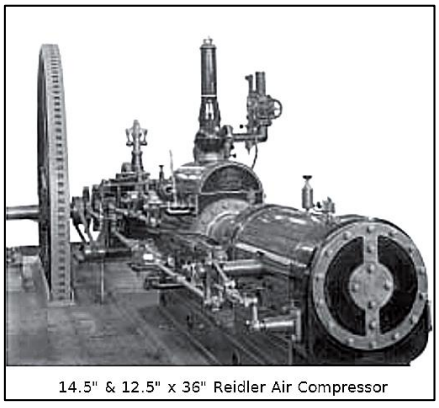


The Crown pelton wheel and air compressor.

This is a huge wheel, 10ft (3m) diameter, three nozzles, direct coupled to an air compressor of 180 HP. Installed during 1897, operational early 1898.

The shaft of this wheel is still in the chamber.

Papers and Reports Relating to Minerals and Mining, 1897.



A Reidler air compressor[41]

41 https://www.researchgate.net/publication/338608154_Pumping_Engines_of_the_Wheatley_Mines_Eastern_Pennsylvania_1850-1873

1897

The Pelton wheel and compressor

19 March

Good progress is being made with the excavation for the chambers both on the northern and southern sides of the Waitawheta river, and it is expected that these works will be completed this month and ready for the reception of the new machinery which is continually arriving in Auckland. During the month the Te Koa[42] has arrived with more machinery for these mines, being a single cylinder pumping engine, 14 by 30 inches, to drive the pump ten strokes per minute, and fitted with a fly-wheel 11 feet in diameter, weighing nearly three tons, also one pair of link-motion geared hoisting engines, cylinders 12½ by 15 inches, with two drums 59 inches in diameter and 4 feet on face. All these parts will be forwarded at once to the Crown Mines, and will be fitted into their places prior to the arrival of the Mamari[43], which is bringing an air compressor for compressing the air into the receiver, from which it will be conveyed to the pumping and winding engines above described, and also to the rock-drills which will be used in the near future throughout the mines.[44]

15 April

The construction of the large flumes for the conveyance of water to the large Pelton wheel to be used in connection with the new development works in hand at No. 6 tunnel, has been commenced, and over 300 feet of the fluming has been partly completed. The Kauri Timber Company has delivered about 80,000 feet of timber for this work out of a total quantity of about 280,000 feet. The excavations of the chamber for the pumping plant are completed, while the excavations for the compressor and winding engine are very nearly so.[45]

2 August

Immediately opposite the mouth of No. 6 tunnel, on the other side of the Waitawheta, a large chamber, 52 feet by 45 feet, has been excavated and timbered for the air-compressing machinery which will drive the pumps and winding gear in the shaft in No. 6 tunnel, about 200 feet distant south, and will also drive the rock drills. The compressor will occupy a space 42 feet by 24 feet. It will be a two-stage compressor, the low-pressure cylinder being 25 inches in diameter and the high-pressure 16 inches. The stroke is 42 inches and the compressor will deliver 1680 cubic feet of air per minute and give a pressure of 75lb per square inch. The heavy flywheel is 18 feet in diameter and weighs 14 tons. The compressed air passes from the low-pressure cylinder into the cooler, and from there to the high pressure cylinder, where it is compressed to 75lb per square inch. From the high pressure the air passes to cylinders 15 feet long by 5 feet, and is conveyed across to the pneumatic engines (made by Messrs. Fraser and Chalmers) on the opposite side of the

[42] Steam ship. See: https://paperspast.natlib.govt.nz/newspapers/AS18990914.2.37.1
[43] Large steam ship. https://natlib.govt.nz/records/22387764
[44] https://paperspast.natlib.govt.nz/newspapers/NZH18970319.2.78.4
New Zealand Herald, Volume XXXIV, Issue 10394, 19 March 1897, Page 1 (Supplement)
[45] https://paperspast.natlib.govt.nz/newspapers/NZH18970415.2.63.4
New Zealand Herald, Volume XXXIV, Issue 10417, 15 April 1897, Page 1 (Supplement)

> gorge, where one will work the direct acting pump, while the other will be used as a winding engine in connection with the underhand stope below No. 6 level. The engine will be capable of hauling a ton of ore from a depth of 600 feet at the rate of 300 feet per minute, so that the engine can lift a ton to the No. 6 level every two minutes from a depth of 600 feet. The trucks will be capable of holding a ton of ore, and these are believed to be the largest in the colony used for a similar purpose, while an additional advantage is that the trucks will be conveyed directly from the level to the large hopper where the stone-breaker is at work. The power will be derived from a Pelton wheel, which will be attached direct to the main driving-shaft of the compressor, and this has been specially designed so as to revolve at a speed of 65 revolutions per minute. It will thus be noted that the compressor works without any belting or with gearing of any kind. The governors of the wheel will be worked by a mechanical arrangement and by an electric replogle machine[46]. The Pelton wheel will be 10 feet in diameter, and worked by three nozzles of 5½ and 4½ inches diameter, working under a pressure of 32lb per square inch, and having a supply of 30 sluice heads, or 1800 cubic feet per minute…
> Proceeding to the mouth of No. 6 level, and looking up the gorge it will be at once noticed that good progress has been made with the water-race, which will be one mile and a-half long, and for which nearly £2300 will be expended in timber alone. [47]

So the No. 6 tunnel is the tunnel at tramway level. It is also called the Waitawheta Tunnel/

29 October

> Of course, being situated in a gorge, with hills towering up on either side, it was difficult to place a machine site, but this obstacle was obviated by the cutting out of a huge chamber in the hill opposite the mouth of No. 6. The dimensions of this chamber are 53 feet by 40 feet. It has been timbered with 16 by 12 pieces, and nine by three decking. At the time of my visit the engineers were busily engaged in the erection of the plant. This consists of two stage compressors of 256 theoretical power or 180 effective, and being near to the levels there will be very little, if any, loss of power or mechanical friction in the conveyance of the air to the workings. One feature of the plant is the large flywheel, which is 18 feet in diameter, and weighs 14 tons. The machinery chamber will be lit up by a small dynamo of about six horse-power, whilst the workings on the other side of the river will also be lit up with electric light. The whole of the machinery is being united as quickly as possible, and it is anticipated that it will all be working before the end of the year. [48]

[46] A Water-wheel governor, invented by FS Replogle. This will efficiently control the speed of the wheel under differing loads. See: https://patents.google.com/patent/US781966
[47] https://paperspast.natlib.govt.nz/newspapers/NZH18970802.2.8
New Zealand Herald, Volume XXXIV, Issue 10510, 2 August 1897, Page 3
[48] https://paperspast.natlib.govt.nz/newspapers/NZH18971029.2.77.5
New Zealand Herald, Volume XXXIV, Issue 10586, 29 October 1897, Page 1 (Supplement)

1898

18 February

As already stated, the New Zealand Crown Company's manager (Mr. Daw) succeeded in starting the new air compressing plant.[49]

23 February

the Pelton wheel … supplied by Messrs Fraser and Chalmer, Ltd. [50]

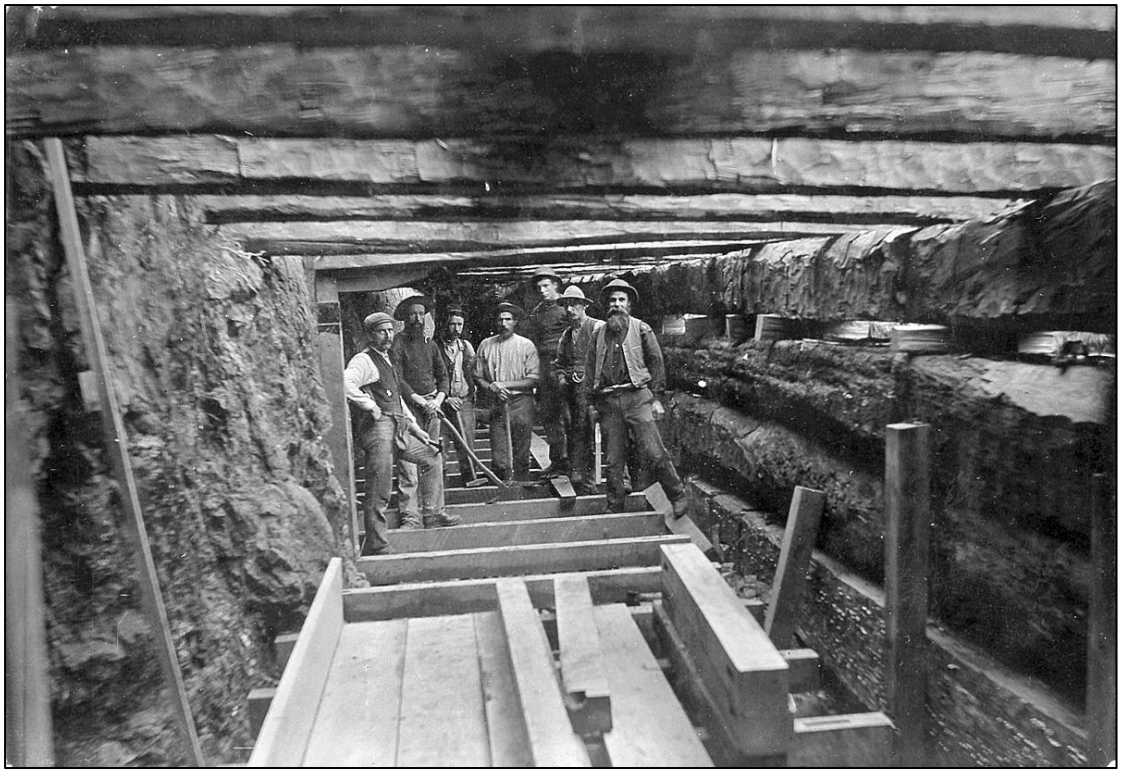
25 June

The Crown Company at Karangahake have suffered severely, part of their water-race is washed away, but the most serious damage is to the tramway from the mine, which has been swept away for a considerable distance. The air compressor connections with the mine are also gone...[51]

AJHR 1898

The big air-compressor, the largest in the colony, is working smoothly, and doing its work well. The water-race which drives the Pelton, which, by the way, is also the largest in the peninsula, carries thirty heads of water, is a mile and a half long, and has been entirely constructed during the year. [52]

[49] https://paperspast.natlib.govt.nz/newspapers/NZH18980218.2.67.4
New Zealand Herald, Volume XXXV, Issue 10680, 18 February 1898, Page 1 (Supplement)
[50] https://paperspast.natlib.govt.nz/newspapers/OG18980223.2.10
Ohinemuri Gazette, Volume VIII, Issue 470, 23 February 1898, Page 3
[51] https://paperspast.natlib.govt.nz/newspapers/AS18980625.2.10
Auckland Star, Volume XXIX, Issue 148, 25 June 1898, Page 2
[52] https://paperspast.natlib.govt.nz/parliamentary/AJHR1898-I.2.1.4.4
REPORTS OF WARDENS AND OTHER OFFICERS ON GOLDFIELDS., Appendix to the Journals of the House of Representatives, 1898 Session I, C-03a



Construction of the Crown Waitawheta water race head works, later half of 1897.

This is the upstream end of the wooden water race flume that feed water to the pelton wheel opposite the Crown No. 6 level. Not visible behind the seven workmen seen here is the short tunnel through the rocky headland from the dam.

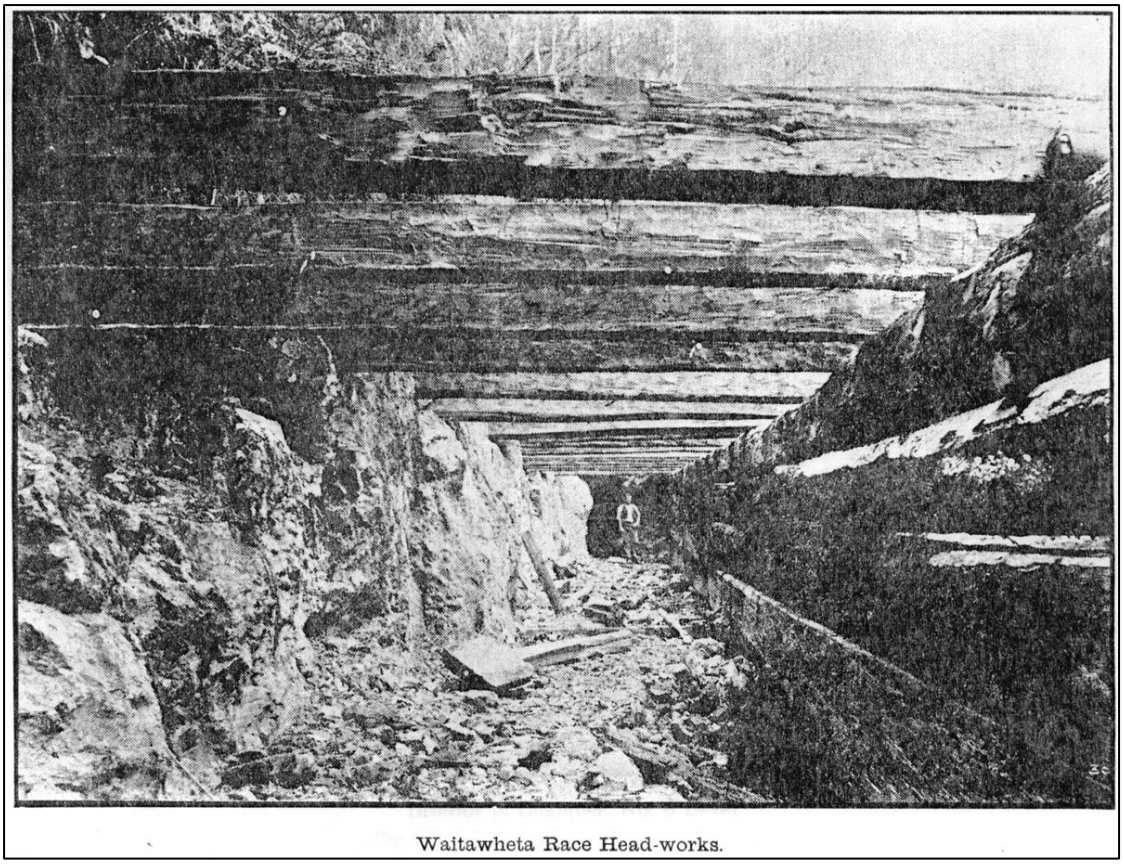
Cliff is on the left, river beyond the timbers on the right. The sawn kauri timbers the men are working on are the basis of the flume. The large, hand adzed timbers above and to the right are armouring timbers to protect the more delicate flume from flood damage. The bottom of the flume is here only half a metre above stream level.

The large roof beams are notched into the cliff, and these notches can be seen today. So too remains of the very large foundation logs, and their fasteners.

The dam that fed the tunnel and then flume was a low wooden structure; only a little evidence remains. Water flowed through the tunnel into the flume. Water flows through the tunnel to this day. The pool here is a popular swimming hole.

The tunnel here through which walkers travel to Dickey's Flat was put in in 1959 for the Paeroa municipal water supply pipe.

Staples Collection.



Waitawheta Race Head-works.

Although this image was published in the Mines Record 1902, it dates from a trifle earlier than the above image. The water race was benched down stream to a point above the pelton wheel chamber where it entered a large pipe inside the mine workings to reach the wheel nozzles. The walkway follows this bench, dropping off it only as it approaches the mine.

The Paeroa municipal water pipes made use of this bench for convenience, dropping steeply down the cliff when the bench ended at the mine.

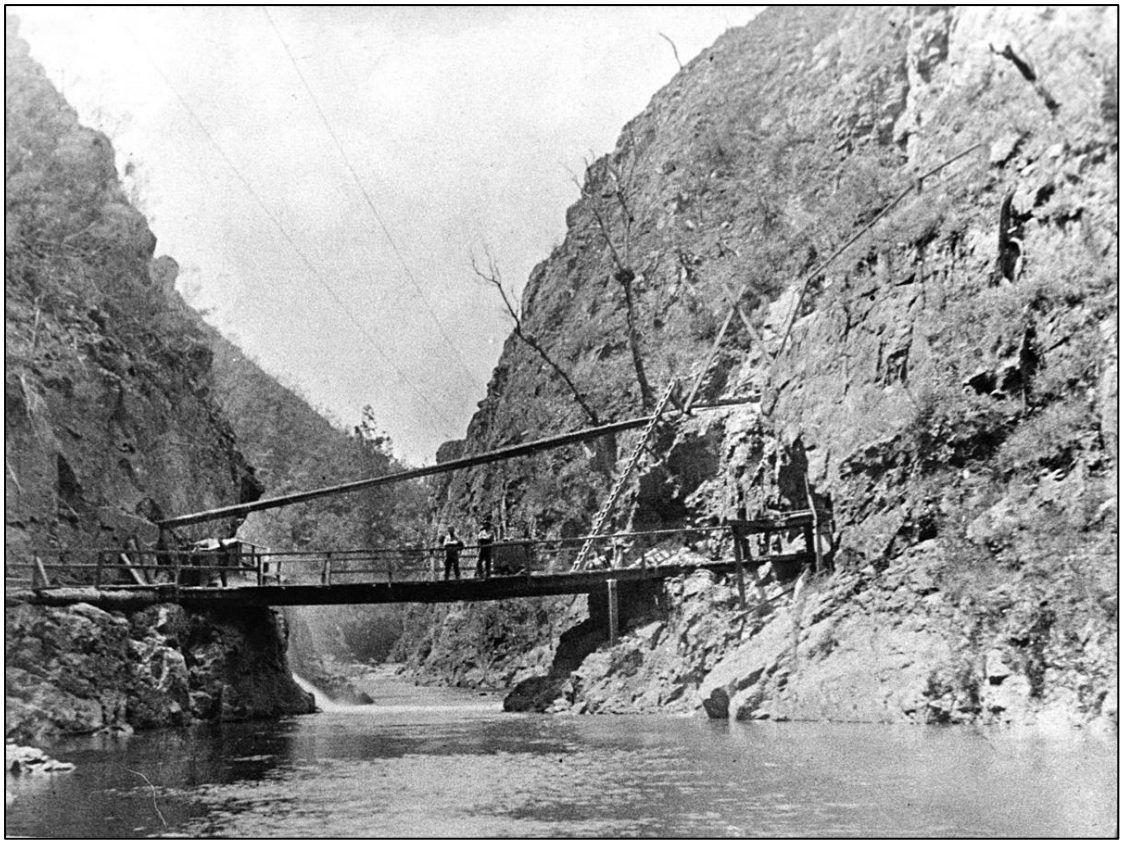
This is a George Chappell photograph; he is on the left. His well-dressed friend appears in other Chappell photographs. They are standing on the Crown Waitawheta water race flume.

Note the planks for walking along the race.

Date: 1910-1920?

The flume is gone, but we now walk along the bench it sat on.

Staples Collection.



This photograph shows the large compressed air pipe coming from the pelton wheel/compressor chamber on true right bank. Therefore later than 1898. The discharge water from the pelton wheel can be seen exiting the cliff as spray just above water level.

Today we see two “discharge tunnels” below the walkway. Not sure which is which.

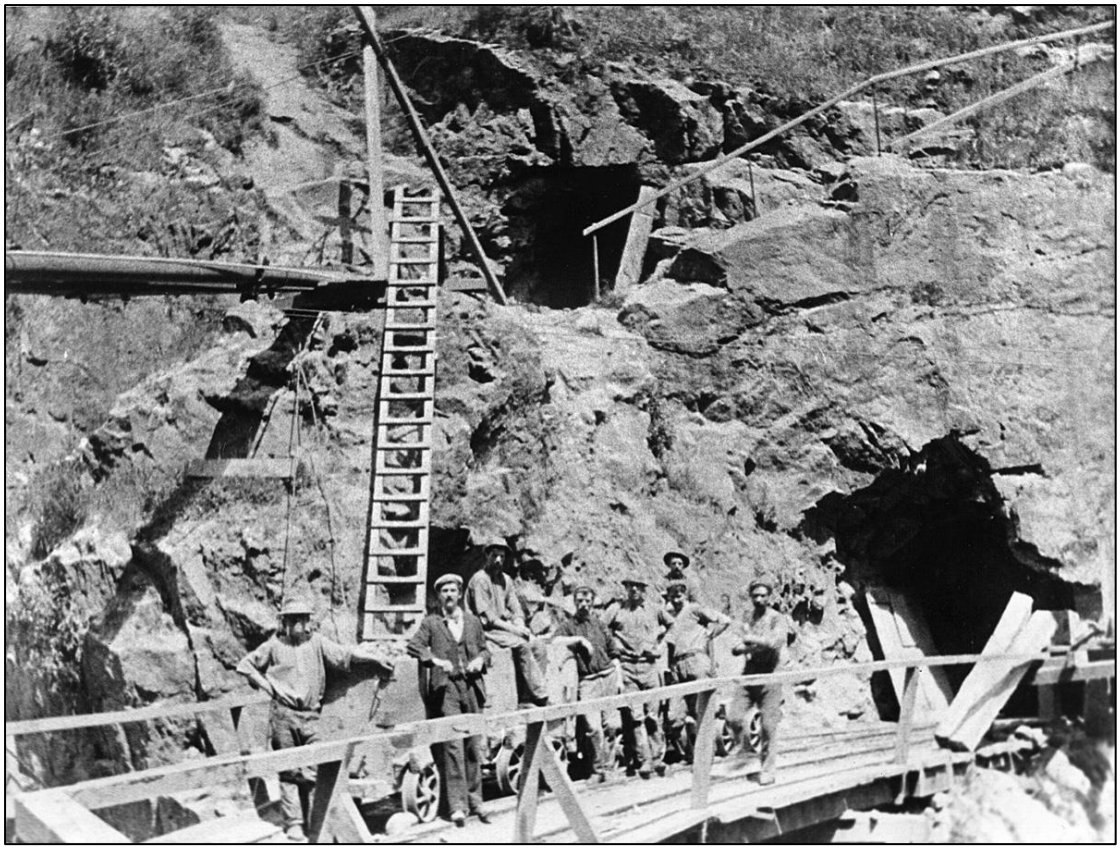
Two men at the middle of the bridge with an ore cart, and one at left hand end.

What appear to be electric wires can be seen against the sky. Electric lighting was introduced to the mine c1898[53] [54].

DoC Thames.

[53] https://paperspast.natlib.govt.nz/parliamentary/AJHR1899-I.2.1.4.4
REPORTS OF WARDENS AND OTHER OFFICERS ON GOLDFIELDS., Appendix to the Journals of the House of Representatives, 1899 Session I, C-03a

[54] https://paperspast.natlib.govt.nz/newspapers/NZH18971029.2.77.5
New Zealand Herald, Volume XXXIV, Issue 10586, 29 October 1897, Page 1 (Supplement)



Eight “truckers” posing for the photographer. Air pipe top left, so post 1898.
Note the hand rail top right. Foot access to somewhere.
DoC Thames.

This photograph is taken from the old tramway from Crown mine to the old Crown and Railey's battery. We are looking downstream. Air pipe, six ore carts and one man can be seen at the bridge.

The Crown Waitawheta water race can be seen terminating at the cliff above the pelton wheel chamber, extreme right of image, half way up. There is also suggestion of a ladder-like structure on the cliff below the water race flume, and some sawn timbers closer to the photographer. The ladder-like structure may be a small flume to act as a bye wash for the main water race (see next photograph).

DoC Thames.

There is considerable upgrading evident here. More solid bridge abutments, a more substantial access way to the higher (No. 5) level, and even a smoke stack high up on the cliff. So already a small steam plant.

This image shows ten ore carts, but no horse, one man (behind ore carts at middle). Are ten trucks going to be pulled by one horse? The photograph "Rake of trucks from Crown mine, Darkie" shows Darkie the horse indeed pulling ten ore trucks.

Beneath and behind the bridge can be seen the discharge from the pelton wheel, and behind that, water cascading into the river. This must be bye-wash from the water race, ie water surplus to requirements at the pelton wheel, which must be discharged from the flume as overflow.

What is the purpose of the bird-box like object at the left of the bridge?

DoC Thames.

1899

17 February

The New Zealand Crown Mines Company. The manager has altered the names of the levels, in order to save confusion. The No. 6 level in future will be known as the **Waitawheta tunnel**.[55]

22 December

Then more effective pumping-power is wanted at the low level, and the emergency is to be met by the installation of a plunger and draw-lift pump. This plant has already been ordered, and is now on its way from Home. The pump will be capable of lifting 300 gallons per minute from a depth of 1000 ft at a maximum speed of 11 strokes (6ft) per minute, so that the water difficulty will be successfully combated. [56]

AJHR 1900

New Zealand Crown Mine. —Two Tangye pumps worked by compressed air have up to the present been sufficient to cope with the water under the No. 6 adit level, but a new pumping plant is expected shortly to arrive from England, and will be put in position in the No. 1 underlie shaft, and thus replace the Tangye pumps now in use. This plant will be capable of dealing with any water that may be met with in the lower workings for some time to come. [57]

1900

11 May

With regard to the new pumping plant Mr. Daw informs me that a cable has been received to the effect that a portion of the plant has been shipped, and is now on its way to the colony. This will arrive in due course, and no time will be lost in its installation.[58]

24 December

The installation of the new pumping plant is also well in hand, and this too should be in working order by January or February. [59]

AJHR 1901

Hoisting and pumping machinery have been erected at this shaft, the power being compressed air, generated near the mouth of the mine by a two-stage compressor, built on the Reidler system by Messrs. Fraser and Chalmers. Compressed air is also used for working rock-drills in the mine. The

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[55] https://paperspast.natlib.govt.nz/newspapers/NZH18990217.2.82.3
New Zealand Herald, Volume XXXVI, Issue 10989, 17 February 1899, Page 1 (Supplement)
[56] https://paperspast.natlib.govt.nz/newspapers/NZH18991222.2.55
New Zealand Herald, Volume XXXVI, Issue 11252, 22 December 1899, Page 1 (Supplement)
[57] https://paperspast.natlib.govt.nz/parliamentary/AJHR1900-I.2.1.4.3
THE GOLDFIELDS OF NEW ZEALAND: REPORT ON ROADS, WATER-RACES, MINING MACHINERY, AND OTHER WORKS IN CONNECTION WITH MINING., Appendix to the Journals of the House of Representatives, 1900 Session I, C-03
[58] https://paperspast.natlib.govt.nz/newspapers/NZH19000511.2.55.3
New Zealand Herald, Volume XXXVII, Issue 11369, 11 May 1900, Page 1 (Supplement)
[59] https://paperspast.natlib.govt.nz/newspapers/NZH19001224.2.61.3
New Zealand Herald, Volume XXXVII, Issue 11533, 24 December 1900, Page 1 (Supplement)

> compressor is worked by a 10 ft. diameter Pelton wheel, under a pressure of water due to a head of 80 ft., or, say, 34 lb. per square inch.

No mention of a steam plant.

> The company has erected an electric plant, which is used for lighting up the engine-rooms, brace, and shaft, also for firing shots and signalling purposes.
>
> A new and powerful pump has recently been erected in the mine, and there is nothing now to prevent this company from sinking to any reasonable depth…[60]

But not clear if it is steam powered. Read on.

1901

25 February

> Ere long a large pump will be in proper working order at the Crown mine, and should more than suffice for the present pumping requirements. [61]

22 March

> At the New Zealand Crown Mines Company's property every preparation is being made for the extensive development of the lower levels, and in order that the water may be effectively dealt with a splendid pump has been installed. The machinery for pumping and winding is such that almost every contingency is guarded against. [62]

12 April

> The New Zealand Crown Mines (Limited) commenced pumping operations with their newly-installed plant during the last week of March. By the facilities thus afforded it is expected that a marked effect will be the result upon low level operations in the company's mine…
>
> The New Zealand Crown Mines Company have just completed the installation of a splendid pumping plant for use in the development of the deep levels of the mine, and the machinery is working well. The whole of the company's underground machinery is now worked by a **powerful air-compressor**, and it is doubtful if a more complete and up-to-date plant is to be found on the Australasian goldfields. The company's deep level operations were very necessary, for, although there were thousands of tons of ore reserves above the Waitawheta level, the major portion of the stone was not really payable. [63]

Pumps etc are still being powered by compressed air. The steam plant on the cliff is not yet.

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[60] https://paperspast.natlib.govt.nz/parliamentary/AJHR1901-I.2.2.2.4
THE GOLDFIELDS OF NEW ZEALAND: REPORT ON ROADS, WATER-RACES, MINING MACHINERY, AND OTHER WORKS IN CONNECTION WITH MINING., Appendix to the Journals of the House of Representatives, 1901 Session I, C-03

[61] https://paperspast.natlib.govt.nz/newspapers/OG19010225.2.12
Ohinemuri Gazette, Volume X, Issue 784, 25 February 1901, Page 2

[62] https://paperspast.natlib.govt.nz/newspapers/NZH19010322.2.79.3
New Zealand Herald, Volume XXXVIII, Issue 11607, 22 March 1901, Page 1 (Supplement)

[63] https://paperspast.natlib.govt.nz/newspapers/NZH19010412.2.77
New Zealand Herald, Volume XXXVIII, Issue 11625, 12 April 1901, Page 1 (Supplement)

1902

25 April

> The New Zealand Crown Mines…
>
> At the battery the new engine has been fixed in position, and the sheds to cover it are now being built, so that the company will in future always have auxiliary power for driving the mill in the event of the river being too low during the dry season, or of an accident at any time to the water-races.[64]

This engine has been installed at the battery. No mention yet of steam at the mine.

1903

23 July

> NEW ZEALAND CROWN MINES. IMPORTANT DEVELOPMENT WORKS.
>
> …Consequent upon the continued lowlevel exploitations and the opening up of new blocks, it was found that the demand upon the motive power was too great to keep all the plant—such as pneumatic engines, Cameron pumps, and rock-drills— working continuously, and so the management decided to augment the power by an auxiliary steam plant. A large Babcock boiler was therefore installed at the mine. Provision has also been made in the boilerhouse for another boiler, which will probably be erected shortly. The company are doing much towards the solving of the deep level problem.[65]

The Crown have auxiliary steam plant at the mine

This is the concrete pillbox perched on the cliff beside the Waitawheta entrance to the mine. Despite the substantial nature of this installation, this is the only description identified: “Just at the mouth of the level is the boiler-house, a tall concrete building clinging in some wonderful manner to the side of the cliff. Its roof had to be built of iron girders and iron plates of unusual strength to protect the building from falling rocks, which at any time might descend from the heights above, and crash into the boilers"[66]

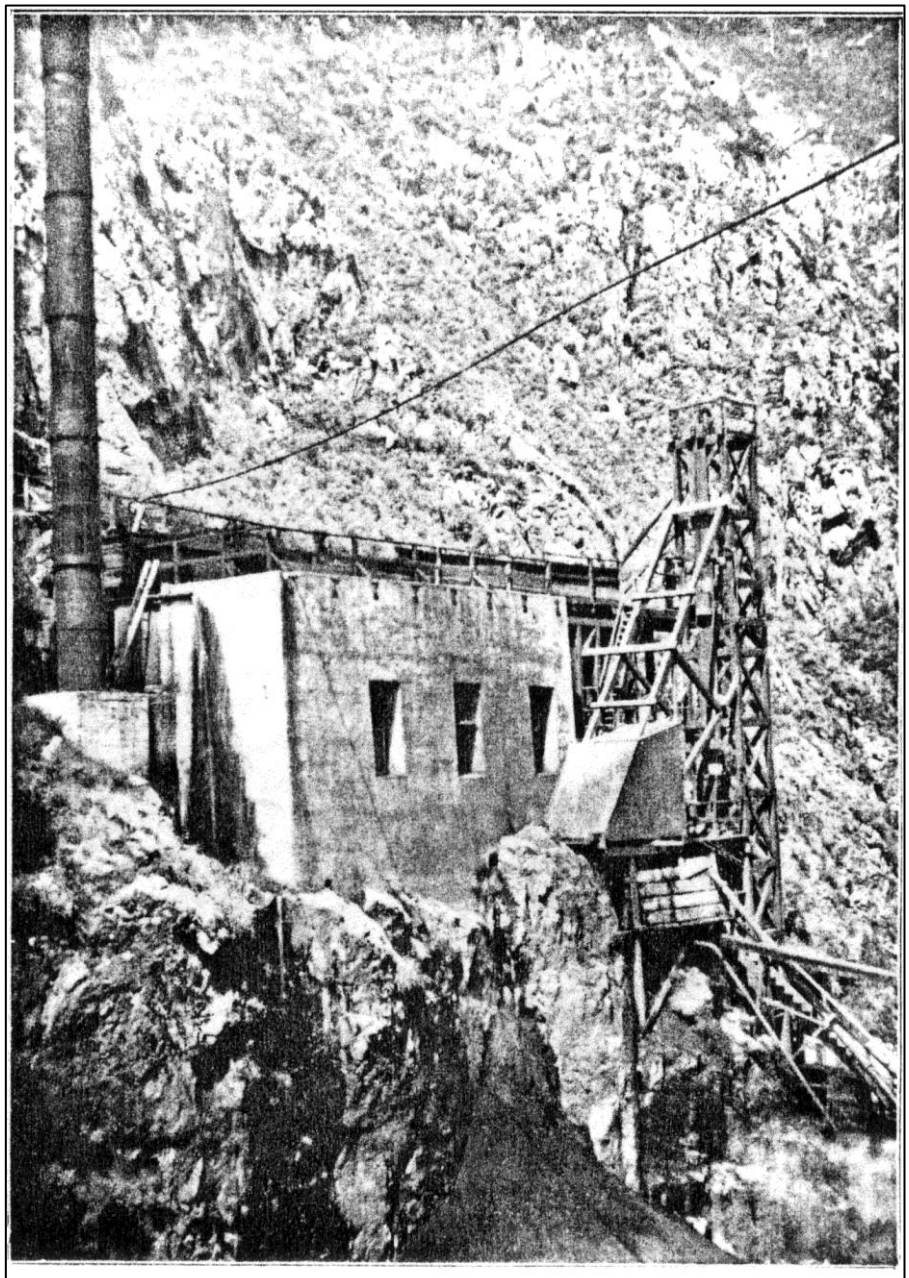
Coal is now available by rail at Karangahake, and can be brought up to the site by ore cart (or similar). But how the hell did they build the plant in this location?

11 September

> NEW ZEALAND CROWN MINES
>
> During the proceedings at the Warden's Court to-day the New Zealand Crown Mines applied for 12 months' protection…
>
> The last protection was granted owing to there being insufficient water power in the Waitawheta River to enable the company to carry out the works contemplated, and further powerful steam plant had been erected during the

[64] https://paperspast.natlib.govt.nz/newspapers/NZH19020425.2.79
New Zealand Herald, Volume XXXIX, Issue 11949, 25 April 1902, Page 1 (Supplement)
[65] https://paperspast.natlib.govt.nz/newspapers/NZH19030723.2.68
New Zealand Herald, Volume XL, Issue 12330, 23 July 1903, Page 6
[66] https://paperspast.natlib.govt.nz/newspapers/NZH19051212.2.83
New Zealand Herald, Volume XLII, Issue 13047, 12 December 1905, Page 6

past six months' protection, for the purpose of providing increased power for pumping, winding, and the supply of fresh air to the workings…[67]



NEW ZEALAND CROWN MINES, KARANGAHAKE.—VIEW OF CONCRETE BOILER-HOUSE, BUILT ON SIDE OF CLIFF NEAR MINE MOUTH.

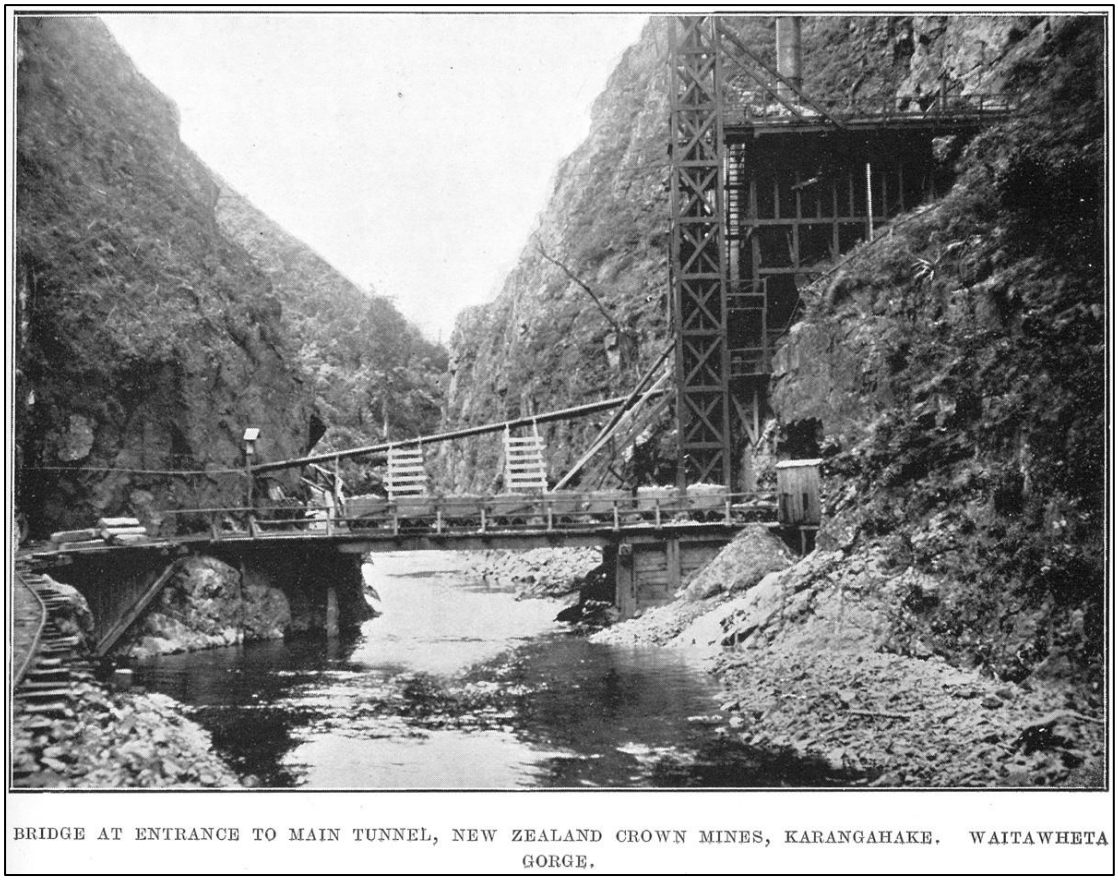
Crown's Concrete Boiler-house. Looking downstream, from true right bank.

A debris cone below the building may be the spoil generated when excavating the site. It is gone in the next images.

Published in AJHR 1905.[68]

[67] https://paperspast.natlib.govt.nz/newspapers/NZH19030911.2.68
New Zealand Herald, Volume XL, Issue 12373, 11 September 1903, Page 6

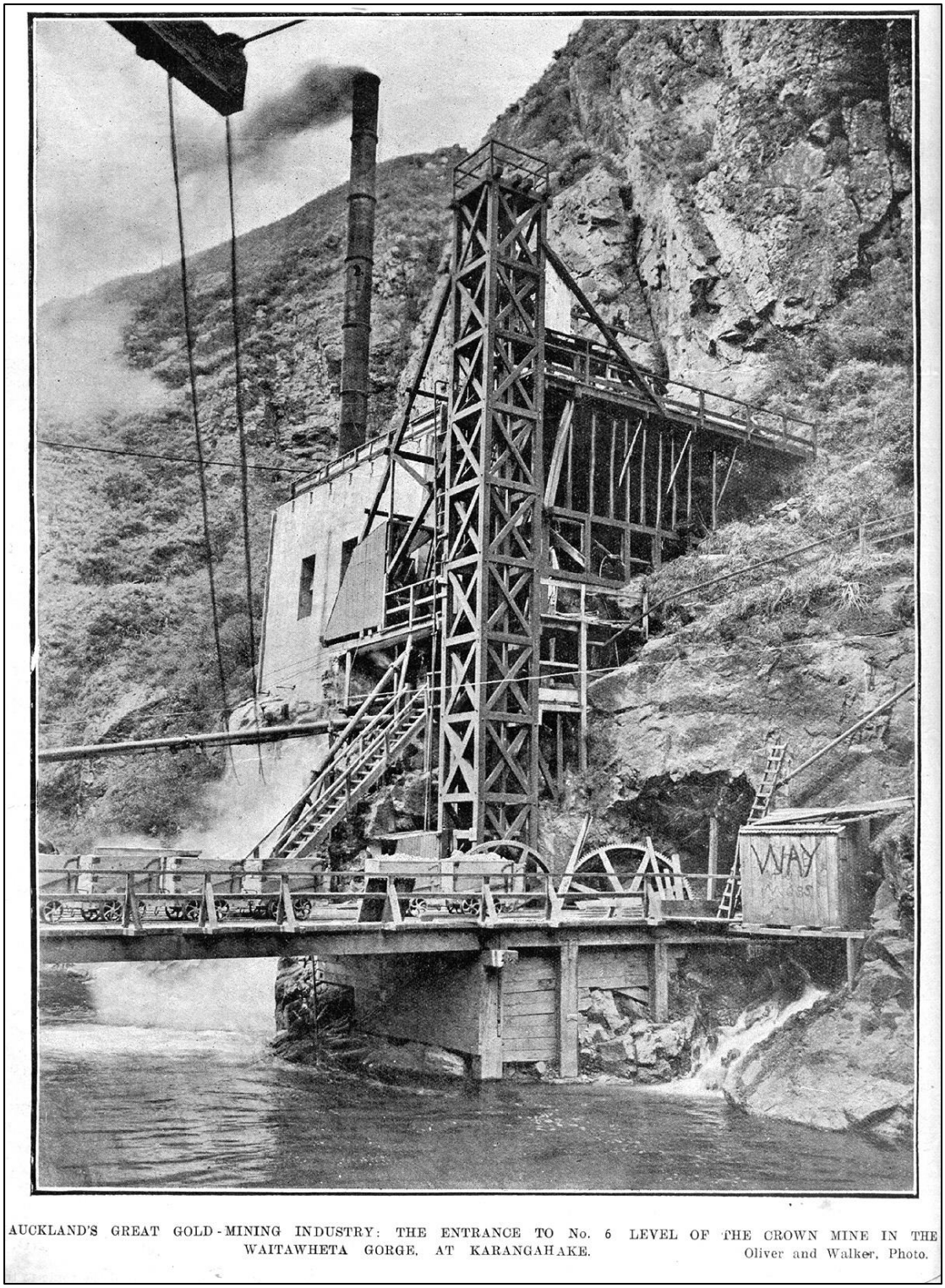
[68] https://paperspast.natlib.govt.nz/parliamentary/AJHR1905-I.2.1.4.3/2
THE GOLDFIELDS OF NEW ZEALAND: REPORT ON ROADS, WATER-RACES, MINING MACHINERY, AND OTHER WORKS IN CONNECTION WITH MINING., Appendix to the Journals of the House of Representatives, 1905 Session I, C-03. Following page 36.



BRIDGE AT ENTRANCE TO MAIN TUNNEL, NEW ZEALAND CROWN MINES, KARANGAHAKE. WAITAWHETA GORGE.

Bridge at entrance to main tunnel. Looking upstream, from true right bank.
Published in AJHR 1905.[69]

[69] https://paperspast.natlib.govt.nz/parliamentary/AJHR1905-I.2.1.4.3/2
THE GOLDFIELDS OF NEW ZEALAND: REPORT ON ROADS, WATER-RACES, MINING MACHINERY, AND OTHER WORKS IN CONNECTION WITH MINING., Appendix to the Journals of the House of Representatives, 1905 Session I, C-03. Following page 84.



AUCKLAND'S GREAT GOLD-MINING INDUSTRY: THE ENTRANCE TO No. 6 LEVEL OF THE CROWN MINE IN THE WAITAWHETA GORGE, AT KARANGAHAKE. Oliver and Walker, Photo.

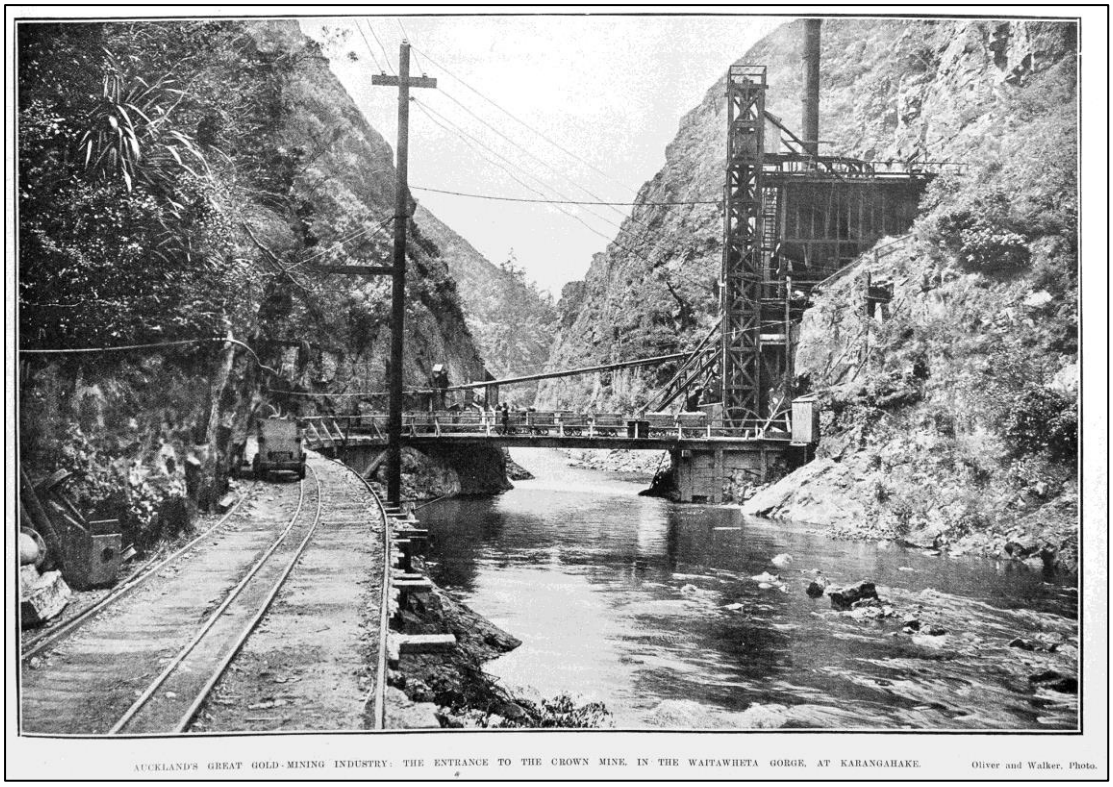
This is the boiler house at the Crown mine No.6 Level entrance on the Waitawheta. This is a later image, 1909.

Coal was delivered in skips to the bottom of the lift, and delivered to the boilers from above. The mine entrance is just to the left of the shed "WAY". The steam engine(s) was in a chamber inside the adit.

The steam pipe(s) must enter the mountain via the No.5(?) adit, behind the building. This adit can be seen in earlier photographs.

1909 11 04 Auckland Libraries Heritage Collections AWNS-19091104-10-05 Oliver and Walker.

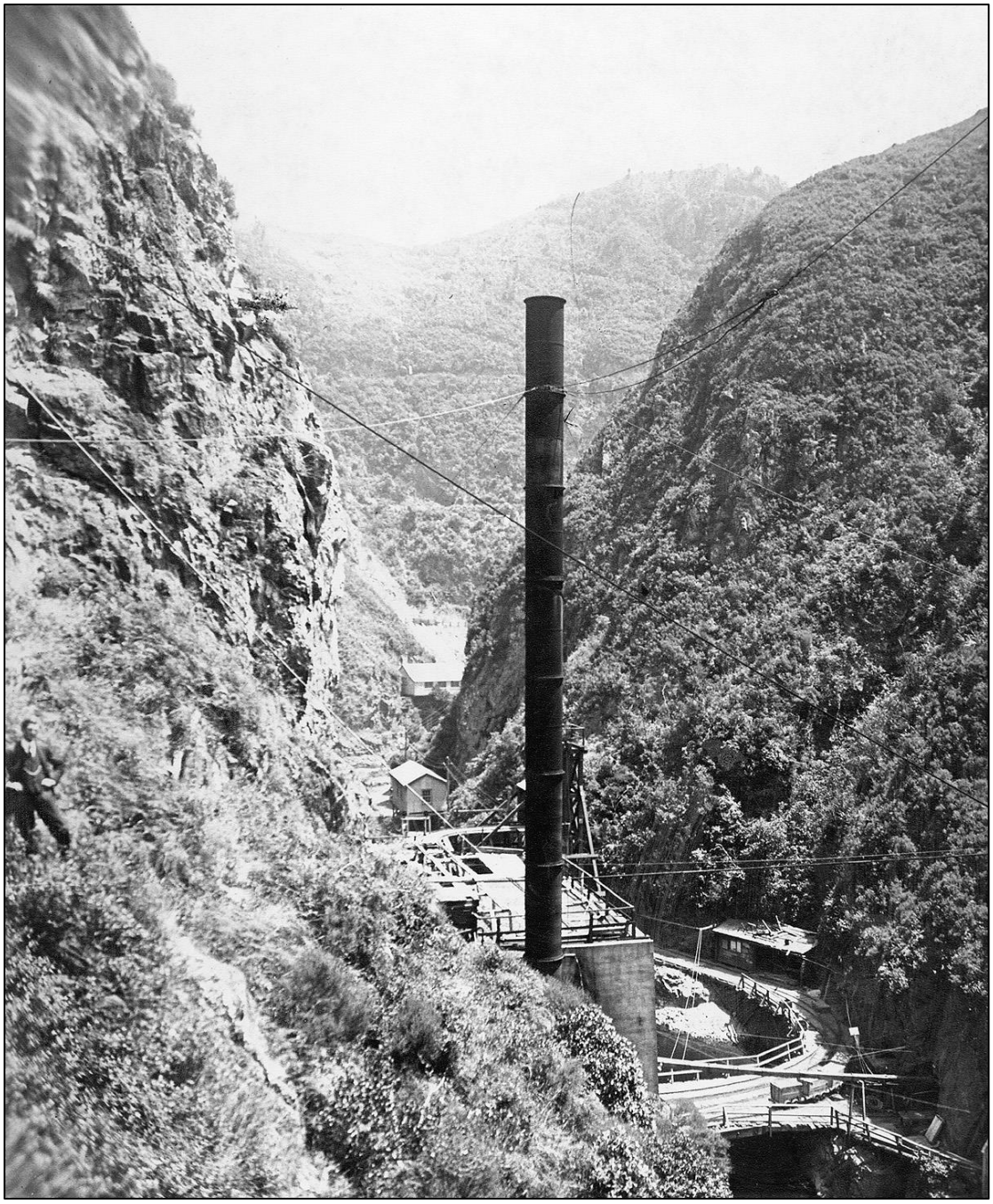
Published by the Auckland Weekly News, 4 November 1909.



Possibly taken at the same time as the above image, we see a man clearing the mail from the letterbox. One man on the bridge, two full ore carts, the rest empty returns?

Published by the Auckland Weekly News, 4 November 1909.

Auckland Libraries Heritage Collections AWNS-1909 11 04-11-02 Oliver and Walker.



A view from above, looking downstream.

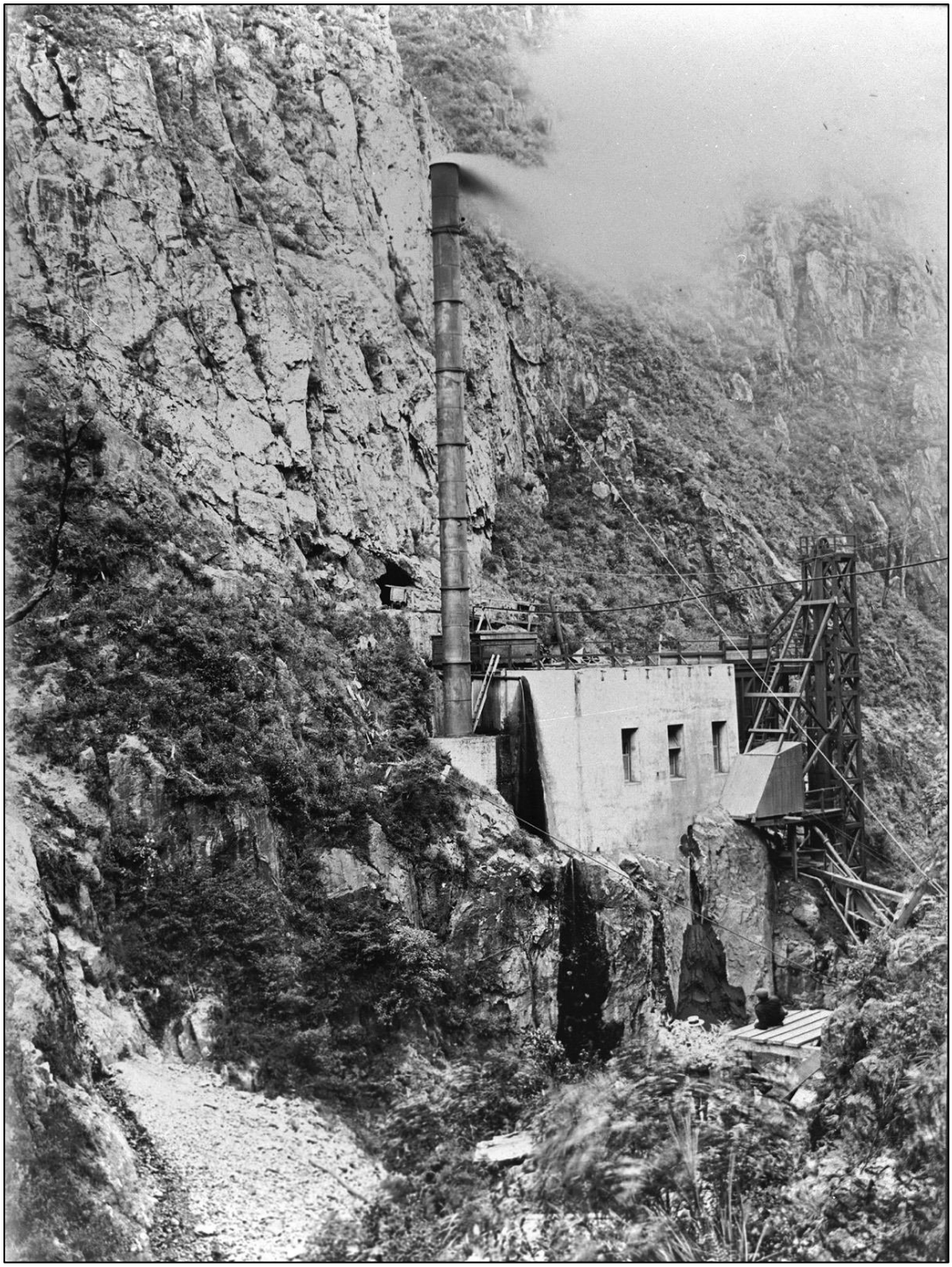
The well attired gentleman at left suggests this is a George Chappell photograph, c.1910-1915?

On the roof of the boiler house can be seen the curved tramway that directed the coal carts from the top of the lift to the coal hopper(s) on/in/under the roof (see detail below). The substantial chimney is well guyed: a section remains in the river to this day.

The “Crown stope” is in the shadowy area to the right of the ore carts.

Staples Collection.

Detail from image above.



The winding engine for the coal lift is in the shelter beside the wooden lattice structure of the lift. A cable extends over a wheel at the top.

An adit (No.5?) above the building shows an ore cart, and possible tramway to the right, with one more ore cart. It is a section of the cliff above the adit that topples on to the building years later, entirely destroying it.

The rectangular box on the roof, behind the chimney, may be boiler water storage. A small pipe is strung across the gorge, it shows in this and the previous photographs. What may be overflow water from this tank is piped to the edge of the building, and then runs over the cliff. This water stains concrete and cliff.

The light coloured debris in the river suggests an adit out of frame to the left.

A man reclines on a wooden platform, and his companion is to his left. The platform appears to be the terminus of a cableway from high across the river. From what? No. 4 Level? The mullock fan in the riverbed may have come from this level, indicating renewed activity. It is not clear how this cable operated. A ladder at extreme right above the platform, may have given access from the water race. This same cable appears in the previous photograph.

The photographer is on or near the water race flume. It was a windy day.

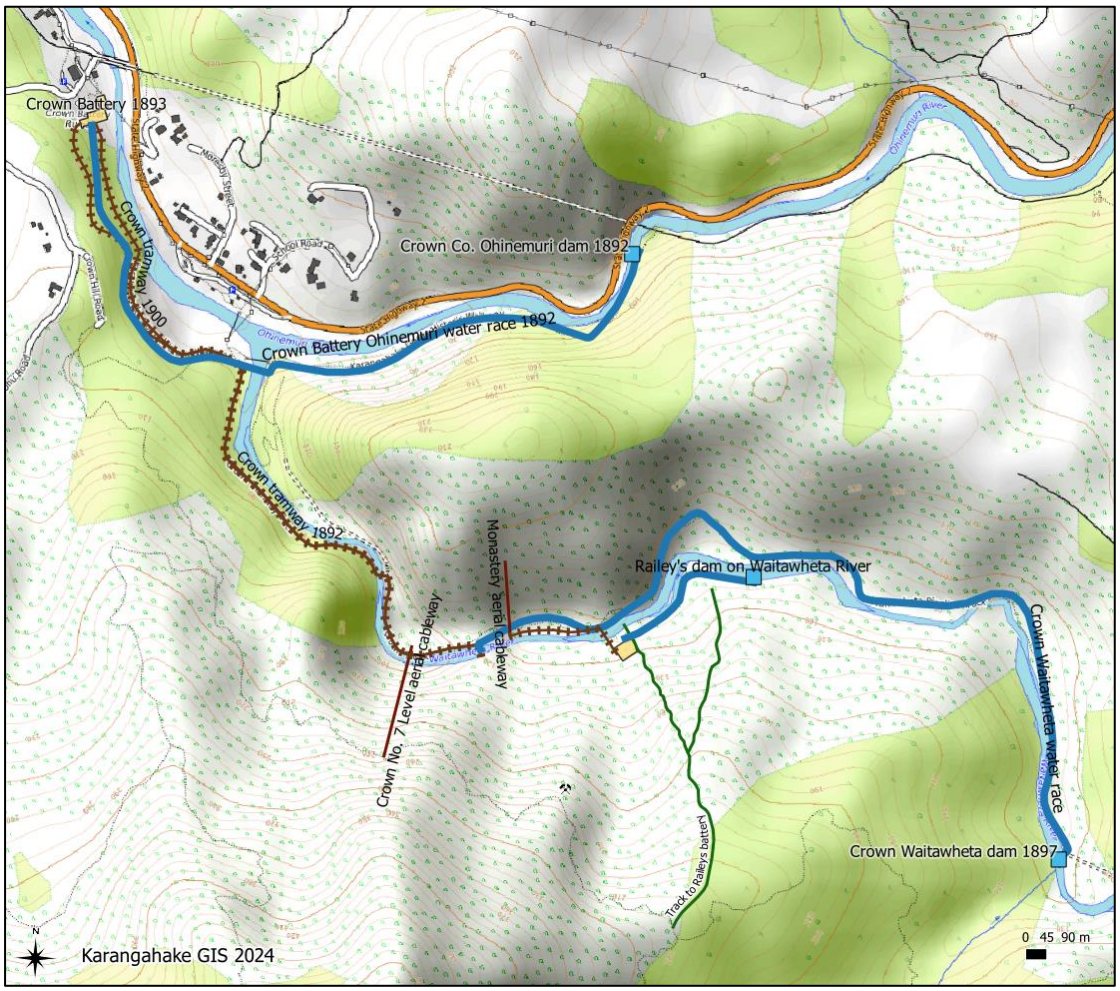
Auckland Museum. George Chappell? c.1910-1915?

1911

4 February

THE KARAHGAHA KE MINES. CONFERENCE INSPECTION. THAMES

…Further up the gorge the Crown Mine's shaft is come to. The engine house is perched on the top of a jutting rock, like an old castle on the Rhine, and seems every moment to be on the verge of slipping off from its precarious perch on the other wise perpendicular cliff. Across the creek from this eyrie, in a cavern cut in the rock, there is an air-compressor driven by a water turbine, the race to supply which climbs round the face of the gorge and appears to hang on nothing more substantial than thin air. [70]



Crown main infrastructure, including Railey's. The River Level adit is where the tramway and water race meet, mid image bottom.

[70] https://paperspast.natlib.govt.nz/newspapers/AS19110204.2.70
Auckland Star, Volume XLII, Issue 30, 4 February 1911, Page 10

Crown mine c.1933?

Note the aerial ore cart and the ore cart on the bridge. There is evidently still some activity here. The cableway in the distance is likely Cherry's light cableway from the Crown 5a Level. Cherry operated here 1933-4. The bottom door of the aerial ore box is hanging down, ore having been discharged to a hopper behind the near bluff at left.

Wire cables strung across the river, cliff to cliff, (help to) support the deteriating bridge.

The river is high. Staples Collection.

Post script

At some time after this photograph was made a very large stone fell on to the boiler house from the cliff above. It completely destroyed the building, crushing one of the boilers and sending the other into the river. The one in the river is still visible underwater beside the rocky edge, in front of the "Crown stope", true right bank. The other can also be seen squashed under the stone in the building remains, along with the boiler tubes. A section of chimney pipe remains in the river, along with sections of smashed concrete walls.